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THE PSYCHIATRIC QUARTERLY

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PSYCHOSOMATICS AND SOMATOPSYCHICS*

BY ABRAHAM MYERSON, M. D.

Introduction

It is assumed that the only practical approach to the problem of the relationship of mind and body is to start with these definite facts: that nowhere in the universe do we see a mind operating independently of a body; that minds vary with the physical evolution of the brain and of other organic structures of the body; that mentalities are inborn both as to capacity to function normally and as to type of abnormal functioning. In short, mind does not slink into the organism in some occult way, hence its evolution goes on together with the evolution of the organism as a whole. These statements are scientific truisms which, however, need reaffirmation.

The mental reactions, therefore, are ways by which the organism reacts to the world around it, and as phenomena they are the resultant of the experiences which the world pours in on the organism and of the capacity of that organism to handle, to store up, and to react to experience. If we separate the concept "mind" into some of its component parts, none of which is independent of the other, we still are faced with the same general situation, namely, that these mental functions are organistic responses.

The instinctual drives depend upon the maturation of specific structures. The sexual life is inconceivable without the organic mixture of male and female hormones present in every individual or without the structures which build and react to those hormones. True, there are social factors operating potently upon these structures. But regardless of the type of social structure, and continuously expressing itself from the most primitive to the highest form of animal life, we see patterns of intense activity which are, on the whole, similar—drives, we call them, and the term is well selected. The peculiar form which the drive may take, its blocking, enhancement, modification—these are parts of education and social conditioning. The organic basis is nevertheless the primary and funda-

^{*}Read before the American Psychopathological Association, Cincinnati, O., May 19, 1940.

mental explanation of what happens, if any explanation can ever be found for anything.

The entire matter of nutrition may be seen similarly. The going after food, the appetite for food, the economic life built up around food, constitute drives which again are modified, elaborated and inhibited by the social structure of the times. But the basis for these drives is organic.

Any activity of the organism, whether it be the activity of play or any of the elaborated activities which we include under the rubric of skill and purpose—these are fundamentally organic in nature, based upon structures which are inherited. The type of activity is similar in general, although differing in detail from individual to individual. Men, on the whole, smile and laugh in similar fashion. They run, leap, and fight in patterns which can be discerned as instinctual and hereditary, however much these may be modified by experience and disease. Whether they say "Alas!" or "Weh ist mir!" the tears are the same. Whether they cry "Hooray" or "Bravo", the bodily expression is one of exuberance and tense activity, and the smile, the laughter and the gleaming eye follow a pattern. These and every other activity are hereditary though modifiable patterns of reaction of an organism to experience.

If we pass from the instinctual drives to emotional responses, again we deal with organic relationships. Fear is nothing substantial if we dissociate it from the dilated pupil, the dry mouth, the blanching of structures of the organism, the alignment of the facial movements, the rapid heart, the gastrointestinal changes, the shift of sugar and of hormones. There is indeed a consciousness of something or other which is experienced, which consciousness we may call the emotion. The emotion, however, is the consciousness plus or times the vasovisceral reverberation as well as a linking-up of that reverberation with the experience which creates or becomes the reverberation. The emotions are experienced, perceived, and finally expressed in altered functions of the viscera.

If we pass from these, let us say, more primitive responses of the organism to experience to that more subtle phenomenon called intelligence, we find the same general set of facts. There is no intelligence without a brain. The building-up of intelligence follows

a pattern throughout life in which the plastic curiosity and unorganized capacities of childhood through experience, training and education develop into the organized skill and judgement of maturity, then finally gaining in rigidity, become the reminiscent remnants of senility. All this runs parallel with, is dependent upon, such processes as myelinization, development of association fibers, growth of structure, vascularity, vitamins, hormones, plaques, and in general growth, maturation and retrogression.

Intelligence may be merely a tool in the service of the genitourinary and gastrointestinal tracts, or it may operate to block and even to destroy their instinctive responses. Intelligence may be as primitive as the mere recording and memorization of an experience. It may be as evolved as the most scientific analysis, the most sophisticated seeking, or the most moral evaluation of experience.

Intelligence is both sensory and motor. On the sensory side, its basis is the curiosity instinct, and in its highest motor form it expresses itself in skilled and wise acts. That is, the individual has benefited by experience. No man can be called truly intelligent who cannot acquire experiences regularly, that is, has not a good system of collecting and remembering them. On the other hand, he is not truly intelligent who does not benefit and consequently does not act in better accordance with his welfare. Whatever philosophers may say about intelligence, i. e. however much we may concede the existence of some intuitive grasp of things independent of intelligence, we find no mechanisms corresponding to this view. We may safely deal with intelligence as fundamentally an organic matter.

Starting with this generalization, that the mental functions, whether we isolate them or consider them as a group, are interwoven with bodily functions in an inextricable way and are just as dependent as are these upon the heredity of the bodily structures and their functioning, we have a solid basis upon which to approach the problem of psychosomatics and somatopsychics.

Here we come to a fallacy of great convenience and of equal peril. Men are incorrigible dichotomizers. They split phenomena into halves in order to deal with them more easily, so that finally they use opposing words and think they are dealing with opposing things. Thus with Mind and Body, Good and Evil, Heredity and Environment, Man and Woman, et cetera, et cetera, ad infinitum.

Clearly, psychosomatics or somatopsychics does not exist as an independent science. There is an organism which receives experiences, which stores and organizes them, and these phenomena are in part called psychic. These psychic phenomena are contrasted with somatic phenomena, but this contrast is a matter of convenience only, in so far as any scientific approach to the problem is concerned. These psychic experiences create, or rather actually constitute, changes in the organism and thus alter other types of responses of the body: This is psychosomatics.

On the other hand, we contrast with this the correlated set of facts that the condition of the organism changes the kind of psychic response which is given; that an injured brain or a full and tense seminal vesicle alters the psychic value of an experience and the pattern of response: This is somatopsychics. There is no line to be drawn between the two, except for purposes of classification and emphasis.

PSYCHOSOMATICS

If by psychosomatics is meant that a mental state or a mental experience profoundly influences the physiology and the health of the organism, then we deal with nothing new except the organization by a new term. Thus a good deal of psychosomatics is merely "new cackling over an old egg". When the Bible states that a man's bowels turn to water at the sight and when a heroine swoons because of emotion, these are psychosomatic phenomena. The nervous cough is a psychosomatic process as are the sweating of fear, the emotional acceleration of pulse rate, the changes in tone of the gastrointestinal tract, etc.

Revitalized by modern medicine, psychosomatics becomes more precise as well as extended in domain. We know now that gastric ulcer is probably, in part at least, created by adverse emotion on what is likely enough a constitutional basis. Asthma, at least of some types, bears a relation to emotional states. Whether hypertension is created by continuous traumata to the circulatory system by emotional and mental experience has yet to be established, but it seems, at least a priori, a likely conclusion that this may be the case. Emotional states may even, so it is stated, change the red cell count, probably on the basis of sympathetic stimulation.

A great deal of what we call "nervous" indigestion is emotional indigestion. Whether there is an emotional basis for the exacerbation of arthritis would seem not proven, although a respectable body of literature is in evidence in this connection. Dermatologists, following the swing of events, also link up certain dermatoses to emotional disturbance. Much of the evidence is coincidental and, if candidly examined, is seen to be based on post hoc conclusions. Nevertheless, there is the best of reason to state that medicine must pay attention to the emotions and moods of man and to the conditioning of his instinctive drives in so far as disturbed physiology is concerned. It may well be that definite organic diseases are finally created by repeated functional disturbance. Certainly fatigue is, in large measure, emotional. That disturbance of sleep may be created by emotion and undue excitement cannot be denied. Many abnormal conditions of the organism are brought about by excessive emotion, or at least, by experience adversely reacted to. This is the case especially with the sexual activities.

A development of profound importance has been the establishment of the rôle of frustration which, more precisely defined, is fundamentally the experimental blocking of instinctual and purposive drives in animals. A long and increasing literature on this subject stems from Pavlov and is rapidly being added to at the present time. This is a relatively new approach to the neuroses. It does not depend upon any hair-splitting analysis of the situations. The frustrations have been crude, coarse and definite. The reactions have been of similar nature. One cannot overestimate the importance of these experimental approaches to the neuroses. For the first time, something like science has been brought into

this field of psychiatry.

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If, however, by psychosomatics is meant the extension of a sort of Freudianism, so that body symptoms become symbolic of conflict, then the same challenge which can be put to all Freudianism may be applied here and more cogently. As "psychosomatics" is often used in this connection, this is a painfully glib approach to problems tending to become a mere exercise of verbal ingenuity, as when a "slip" morally is related to physical "slips" with fractures and dislocations as a result. A further extension is made when the infection by pneumonia becomes the will to die and an ex-

pression of the sense of guilt. The etiologic relationship becomes a bit of that "Whirl me around again, Willy", so common in present-day psychiatry. No proof of any kind is produced or adduced for these distortions of "psychosomatics", in fact ingenious verbalization is the only argument.

Despite any past sin, the individual with pneumonia needs sulfapyridine and he responds equally as well as an animal with the same disease. Whatever may be the rôle of the overhanging domain of past guilt as the "cause" of the broken leg, a surgeon is of primary importance and the psychiatrist is a mere echo, "horning in" where he does not properly belong. Dogs have fractured legs and so do all other animals. As far as we know, the "lower" animals are not greatly troubled by sin and guilt.

If we point out that life situations create strain and produce undue emotions; if we look into the particular life situation and find that it creates atrophy or hypertrophy of instinctual and other activities; if we note that taboo, prejudice, repression, overstimulation make impossible the kind of hygiene and activity for which the human being is meant; and that these situations may finally produce profound and chronic disturbances called neuroses or even psychoses; if we further extend our thought into something not as yet proven but likely, that actual organic lesions may be caused in this way in susceptible individuals—we have a reasonable psychosomatics.

If we investigate and learn that industrial careers of many types produce undue fatigue and that this, in turn, interferes with appetite, rest and recuperation, we are on a safe and sound track. If we emphasize the rôle of emotion, for example, in heart disease either in the etiological rôle, which is still doubtful, or as the more probable acceleration of the disease (as did John Hunter in the celebrated summing-up of his own position), we are working as psychiatrists in an important and useful field. We must state to mankind that its institutions often injure, dwarf and deform the human being, both in the expression of personality and individuality and in the health of his viscera.

SOMATOPSYCHICS

We may define somatopsychics as that division of the relationship of mind and body which states that upon the organic health and organization of the body depend the kind of instinctual, emotional and intellectual response to experience. An experience impinging upon a stone has a result different from that produced by the same experience on a living creature, and, further, the differing types of living creatures will respond differently. In fact, some living creatures will not even perceive the experience. To others it will be indifferent; to still others it will mean something of intense importance. In its simplest form, somatopsychics states that an organism will respond differently to an experience, according to variations of its structural-physiologic state.

Thus, the sight of food will cause salivary secretion and a sensation of hunger together with the motor responses by which the food is to be captured and ingested, provided that food has been abstained from during a certain length of time. Immediately after a meal, the sight of more food may create a sensation of nausea and set up a series of repulsive mechanisms, the reverse of what it did

prior to the ingestion of the meal.

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The seminal vesicles, when tense with seminal fluid, create a series of emotional and motor responses directed toward a member of the female sex, the reverse of those which follow when the vesicles have discharged their contents. Postcoital disgust is a huge and important factor in the love history of mankind and can be contrasted with the antecoital desire as a basic somatopsychic reaction. Sexual hunger, depending upon the state of the organism, is as organically conditioned as food hunger. The origin of all forms of hunger is organic. When the testes are removed, the entire sexual life changes, although the world has not altered in any essential. The reactions to that world, however, have become greatly altered; the mind of the individual, in so far as sexual emotion, sexual desire, sexual conduct are concerned, undergoes a transformation, perfectly well known to mankind and only here designated as "somatopsychics" in order that we may pigeonhole the phenomena and deal with them more succinctly.

If the cortex of the adrenal gland starts working excessively or too early, sexual development and sexual conduct immediately change. The ripening of the organism and its natural evolution become accelerated into pathology. What arouses interest and intellectual-emotional reaction depends also upon the thyroid gland. If it becomes lessened in its activity and the amount of cholesterol in the organism increases as the iodine diminishes, interest, affectivity in general, and intellectual capacity at once diminish to the point of apathy and inertia, even though the world and its experiences are still pouring in on the individual. He no longer has operative receptors for them, nor does he have active effectors.

The dependence of psychological states upon the condition of the brain needs no elaboration to a group of psychiatrists or of any medical men. The changed personality of the patient with general paresis, the altered psyche of senile dementia, the dependence of mental function upon circulatory conditions, blood states, toxic products from whatever source—all this is as old as the hills, but needs emphasizing because it is part of a general set of principles, namely, that what is experienced and the mental states which are then built up depend upon the evolution and the condition of the brain of the reacting individual. To what he shall pay attention, what he shall store up, and how he shall act—these are all organically-physiologically conditioned.

The appearance of alcohol on the scene marks one of the greatest events in the history of somatopsychics. Men drink because alcohol changes the psyche. It is a shallow, or at least an incomplete. statement to say that men drink to escape from one thing or another. They drink for exhibitantion, to celebrate, to mark an epoch, to ceremonialize their relationships, as well as to get freedom from emotional distress and from conflict or injured egoism. C₂H₅OH is a somatopsychic factor of tremendous influence. The world and experience become changed because the drinker changes. The objects to which one pays attention, the emotions one feels, the things one thinks and the deeds one performs become altered as the chemical enters the organism and changes the physicochemical states of nerve cells, hormones, endocrine glands and bodily tissues in general. True, antecedent organizations and trends may become released into activity as exemplified by the proverb, "In vino veritas". The proverb is as incomplete as are most proverbs. In vino a new veritas is created.

The state of the bowels in some people makes an enormous difference in their reactions to the world. A good night's sleep, or the reverse, helps determine the courage with which one faces his problems and the kind of thing he will select to pay attention to and, further, to which he will react, as well as the kind of reaction which will be elicited.

In a fundamental sense, heredity determines what type of thing will become important, what will become of psychological validity and significance, and the kind of response which will be given forth. For example, a man reacts with a type of psychology which we call schizophrenic: he retreats, builds up delusions of persecution; he selects out of the manifold of experience certain experiences to pay attention to and to brood over, because his organism has been directed by the mysterious forces of heredity to an abnormal selection and storage of, and reaction to, psychological experience. And so with manic-depressive states; likewise with feeblemindedness. Just prior to an epileptic attack, a man may feel that he is about to solve the problems of the universe. After the seizure, he is in a cloudy state of consciousness and his reactions are different because of the cerebral and somatic explosion which has taken place.

Somatopsychics makes no effort to explain consciousness or to enter into any debate about subtle philosophical problems. Causation is assumed to exist—even though the scientist knows that causation in the crude sense has disappeared from a good deal of scientific thought; that no one event causes another in the strict logical sense. Pragmatically, however, we may say that a blow on the head causes unconsciousness. We may say that alcohol causes intoxication, that the spirochete causes general paresis, etc., etc.

In this regard, we are in the same situation as the plumber who says that a leak in a piece of pipe is due to the fact that the pipe has rusted because of the action of water on iron and the formation of an oxide of iron. He then proceeds to cut out the rusty and leaky piece of pipe and to replace it by a new one, even though all the forces in the universe have cooperated in the bringing about of this rust and leak.

The critical and immediate pragmatic conclusion is the one which is important from the temporal point of view. We do not solve the mysteries of consciousness and of life here or hereafter by somatopsychics. We do formulate the thesis that those reactions which we call mental are, in the last analysis, dependent upon structural

relations and alterations which are brought about, first, by heredity, and second, by the interplay of the inherited type of structure with an environment. A cow and a horse may eat the same grass and live in the same stall. The environment does not change their bovine and equine qualities into one another or into some intermediate product. They may grow up to be different kinds of horses and cows, according to the kind of food they eat and the kind of experiences they undergo; and whether they shall be frightened by one thing or another, desire and react to this or that experience, will depend upon what their germ plasm has given them to begin with and the results of experience from conception onward.

Consequent Therapeutic Principles

Moreover, it seems a fact that mental states can probably be best, at least easiest, altered by organic or physiological means. The saddest event in the history of psychotherapy is the victory of that therapeutic Blitzkrieg called shock therapy in the treatment of affective psychoses. Here are conditions which seem entirely psychic—emotion, mood, desire, affectivity are involved with no known physiology, no known organic basis. The setting seemed ideal to generations of psychiatrists for psychotherapeutic means of cure, with complete failure as the result. Nothing in the history of psychiatry is as dismal as its record in manic-depressive psychosis, a disease which seemed made to order for psychotherapy.

Then came the metrazol shock therapy, introduced on a thoroughly false premise for the treatment of schizophrenia, utterly without logical or physiological foundation, as yet, for the treatment of anything under the sun—and it is of great help in the affective psychoses. The writer has seen depressions of chronic type which have resisted all the forms of psychotherapy, including psychoanalysis, suggestion, hypnotism, which have been adamant to all the gentler drug treatments and physiotherapies, disappear like mist after half a dozen brutal convulsive seizures. Multiform obsessive fear states of the most disabling type, which have not yielded in the least to any of the measures which seemed logical, pass into a complete remission which has lasted up to this time after four metrazol shock treatments. It is futile to say that this treatment is psychological, that it creates a fear in the patient

which overwhelms him. The fact is that when metrazol treatment is given just below the point of shock at that stage where fear is greatest, no good result follows and it is only from the organic damage of metrazol or some unknown therapeutic component that

good results follow.

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Moreover, the fact is that physiologic means of whatever type have been more important in schizophrenia than any amount of psychoanalysis or psychotherapeutics of all kinds. In the realm of the mental diseases and the neuroses more therapeutic results can be accomplished by a few drugs, shock therapy, total push methods, and in general a crude, direct approach to the problems than by all the refinements of psychotherapeutics known at the present time. In other words, the therapeutics of psychic states of whatever degree, whether of the mildest neurosis or the deepest, most permanent-appearing psychosis, is the therapeutics of medicine as a whole. The physical means are as logical as the so-called psychotherapeutics and, as yet, are superior in efficacy.

The final statement of the case is that we cannot separate our therapeutics into psychic and somatic. We have a perfect right to use all the measures at hand, including analysis, suggestion, reorganization of habits, reorientation of purposes, insight so far as we can give it into life, in addition to all the chemical and physical means available. Of course, the same is true of somatic disease. To physicochemical therapeutics can legitimately be added all the implements in the psychic armamentarium of the physician, including hope and courage, as well as a general atmosphere which

makes for a good mood.

To conclude, just as there is no separation between psychosomatics and somatopsychics, except as a matter of convenience, there is no fundamental separation between psychotherapeutics and somatotherapeutics. He neglects his patient who confines himself to only one of the sets of the therapeutic measures which medical science puts in his hand.

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Division of Psychiatric Research Boston State Hospital Boston, Mass.

TYPES AND ANALYSES OF THE CLINICAL PICTURES OF RECOVERED SCHIZOPHRENICS

BY OTTO KANT, M. D.

In attempting to determine the general characteristics of a group of 39 completely recovered schizophrenic patients* who had received no shock treatment and who at the time of reexamination had been out of the hospital for more than four years, it seemed advisable to distinguish five different groups among the recovered patients, there being several outstanding features common to all of them. The heredity as well as the personality type suggested strong cyclothymic admixtures. Manic-depressive taint was several times more frequent than schizophrenic taint in the hereditary background of the recovered patients, the majority of whom were characterized by extraversion of temperament. Certain psychopathic traits, such as emotional lability, lack of maturity (infantilism), and inclination to neurotic attitudes, were represented with about the same frequency. With the exception of one group (11). this personality makeup was in many cases associated with pyknic physique.

Characteristic for most of the psychoses was their psychogenic precipitation (most frequently in the sexual sphere); physical precipitating factors seemed to be of only subsidiary importance.

With the exception of the first group (gradually developing psychoses with depressive coloring), all the psychotic attacks represented some type of excitement, characterized by an acute or subacute onset and by a stormy course of an average duration of several months, leading to complete recovery. Some clouding of consciousness was present in most cases during a greater part of the illness.

The purpose of this study is to outline and analyze the types of clinical pictures, with the hope of contributing to the problem of the differentiation of the schizophrenia group into meaningful clin-

^{*}The general characteristics of the recovered group are being dealt with in another paper. It may suffice here to say that the recovered group includes all those schizophrenic patients who, after having been admitted to the Worcester State Hospital during a two-and-one-half-year period (July 1, 1931 to December 31, 1933), were found to be recovered at the time of the reexamination in 1939. The clinical pictures considered in this study are therefore likely to be actually representative of those types of schizophrenic patients which tend to recover.

ical entities. The five groups which have been distinguished range from cases with close relation to manic-depressive syndromes on the one hand to cases with acute catatonic or paranoid symptomatology on the other. Although all patients might conventionally be diagnosed as schizophrenics, extraneous features are present in every case; the groups are named according to the features which are most outstanding in the clinical picture.

GROUP I. CASES RESEMBLING ATYPICAL DEPRESSIVE STATES

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This group comprises: (a) cases in which the depressive structure is that of a retarded depression, and (b) cases in which it is that of an agitated anxiety-reaction.

Clinical Characteristics of (a)

A gradually developing depressive attitude, apparent shallowness of affect, and tendency toward stuporous conditions are most pronounced. Some clouding of consciousness is very frequent. The contact between the patient and his surroundings appears greatly decreased. Ideas of reference and other paranoid trends, misidentifications, and auditory and visual hallucinations constitute the chief abnormal content.

The main peculiarities of this clinical group may be illustrated by the following case:

M. G.: This 20-year-old girl had grown up in a highly moralistic atmosphere. Her home life was strict; the children were not permitted to attend parties and associate with the opposite sex. The patient acted older than her years; she was reliable and felt responsibility for the younger children. She was a good worker and very religious. While her temperament was more of the extraverted type, her attitude toward the sex problem seems to have been one of strict repression.

After having been a diligent worker in a shoe factory for several years, she lost her job for 10 months because of lack of work. She worried a great deal about unemployment. She started working again two weeks before her admission to the hospital. At the same time she was disappointed by a boy who first had shown some interest in her and then had kept company with another girl. This boy used to tell "dirty stories" in her presence, but she at first did not get the point because of her complete lack of sexual information. When the meaning of these things was explained to her by another girl (this happened during the last week before

admission) she was deeply shocked. She became "hysterical" when told about petting parties, etc. At this time she frequently stated: "Even my father and mother are dirty." She became increasingly upset and thought that other girls were talking about her. During a dance at her club, when a man touched her by mistake she flew into a rage and said the whole crowd were trying to make a "bad girl" of her. Next day she confessed to the priest for laughing at vulgar jokes. She thought the sermon in church was directed at her. She felt condemned and feared she was going to hell. She stated that her whole family and her friends had turned against her to make her wicked. Finally she attacked her parents, and because of her violence and her unusual behavior had to be hospitalized. At the time of her admission she appeared somewhat dazed, depressed, agitated, and withdrawn. She was slow, monosyllabic, and misidentified other patients. She heard "voices" saving she was going to have a baby. Ideas of reference were marked; she believed people were watching her. She was impulsive: her mood varied; on the whole she appeared perplexed. Occasionally she was noisy and disturbed, at other times indifferent and relaxed.

Gradual improvement took place, with fluctuations in her condition. After about five months she was greatly improved, and one year after the onset of her psychosis she appeared to be completely recovered. During the eight years which have passed since her recovery she has been working steadily and at the present time appears much better balanced than before her attack. As she stated during the recent interview, she had been "quite foggy" in the period following her "breakdown."

The combination of depressive features and other psychotic symptoms in reaction to a psychic trauma is evident in this case, and the psychological development of the psychosis can be well understood. Already upset by worries over unemployment, the patient experiences a serious disappointment over her boy friend. The crisis comes when she, who so far has had no contact with the world of sex, learns the meaning of certain sexual jokes which the former boy friend has told in her presence. Her principal reaction is that of self-reproach and depression, but her neurotic ambivalence toward the sex problem is expressed in her delusional idea that everyone is trying to make her "a bad girl". Voices tell her that she is going to have a baby. Her aggression is directed against her parents: "Even they are dirty."

During this whole period she is "dazed" and "foggy". Then she gradually recovers. Sexual ambivalence, anxiety, and disgust expressed in aggressive trends toward her parents are the main psychological features of the psychosis. The psychotic content not only originates in a definite sexual trauma but remains completely centered on this theme until abreaction has taken place. The world is changed as in true psychosis, but the essential psychological aspect is that of a neurotic abreaction.

Analysis of the Clinical Pictures

In all cases of group I, affective disturbances of a depressive type are the outstanding feature. This means not only that the symptoms of depression are more numerous and more striking than any other symptoms, but that the basic structure of the clinical picture is that of a depressive state. What does this statement imply? The depressive reaction is the fundamental change penetrating the entire symptomatology so that every symptom arises from the background of a depressed personality. Thus the depressive change is the center of the clinical picture and all other symptoms are its periphery. The affective basis of the disturbance is illustrated not only by the clinical picture in cross-section but frequently also by the course of the psychosis in which manic episodes occur either in the process of recovery or as short interludes.

The affective disturbance, however, exhibits qualities which differ distinctly from those in a depressive state of the manic-depres-

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Judging by the patient's expression, the degree of his depression frequently is shallow and somewhat in contrast to his depressive verbal statements. This has suggested to observers the presence of inadequacy; "apathy" and "indifference", therefore, were the terms often applied to characterize the patient's mood. Furthermore, definite signs of irritability, and outbursts of swearing and of destructiveness, deviated distinctly from the picture of depression. Stuporous states were often so pronounced that it was difficult to determine whether or not any emotional activity was hidden behind the placid surface.

"I didn't care at all"—this statement characterized what several patients recalled to have been their attitude. Every visit was "a waste of time". Nursing and therapeutic procedures were thought of as "ridiculous". This general attitude is much more

the expression of one who reacts to a crisis by "quitting" and resigning himself to his fate than that of a person in a state of true depression. In other words, all the depressive conditions in group I lack something of the vital depth which is replaced by the much more psychologically conditioned attitude of utter discouragement. This aspect of the "depression" may partly explain the contrasting irritability of these patients and their occasional outbursts.

Another factor contributing to the peculiarities of these depressed attitudes in the majority of patients was some clouding of consciousness during the greater part of the psychosis. While the clouding on one hand weakens the tendency of mental activity toward gaining a high degree of depth in the experiencing personality, it on the other hand helps to deceive the observer since it may hide an actually rich content behind a screen of perplexity and vagueness of expression. As many catamnestic discussions proved, not infrequently patients who had appeared dull and monotonous had at the same time rich, delusional, dream-like experiences. It was only the aspect of clouding and the lack of motion which had reached the surface and that could therefore be noted in the record.

It is principally in connection with clouding of consciousness that "deeper" psychotic symptoms such as misidentifications, symbolisms, delusions of a nondepressive type, and feelings of foreign influence appear in this group. It is not mere chance that several patients spontaneously used terms such as "dream state", "nightmare", and "fairy tale" to express that they had lived in a radically changed world during the main psychotic period.

After clouding of consciousness, the psychogenic aspect is most characteristic for the psychotic structure of this group. Centered upon precipitating difficulties, the psychotic content is well connected or at least on a uniform level and shows some relation to the basic depressive structure. The abnormal experiences, therefore, can much better be understood empathically than those in ordinary cases of schizophrenia.¹ The coloring of the depressive ideas frequently points to their psychogenic roots in the sphere of instincts. Cannibalistic and other algolagniac fantasies on the oral level remind one of similarly structured involutional melan-

cholias. Nourishment represents "ground-up flesh and blood"; one patient called food "flesh and blood of all the people" she has "murdered". She blamed herself for having poisoned her mother: "gave her an eggnog and it had soapsuds and urine in it."

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The psychogenic aspect is, finally, not infrequently demonstrated by the superficiality of the psychotic experiences, i. e. the lack of reality which the patient attributes to them. One patient expressed all her delusional beliefs in such terms as, "I think this building is on fire . . . I think people have been saying I am pregnant . . . I think people have been treated as hostages." During the catamnestic interview, this patient stated she had "perhaps not been one hundred per cent convinced of the reality" of her experiences. There is a playful note also in the way another patient experienced symbolisms. The symbolic significance she attached to colors and patterns is definitely suggestive of obsessive mechanisms: "It was as if something would happen" to somebody dear to her if she finished the pattern on which she was working. Her symbolic interpretations differ distinctly from those of a schizophrenic patient who, for example, "knows" that the physician is in love with her because he wears a red necktie.

In some cases of this group, the psychogenic aspect of the clinical picture is even more striking than the basic depressive structure. Here one might actually be in doubt whether the psychosis, in spite of the associated depressive features, should not be classified as a psychogenic or hysterical state.

Clinical Characteristics of (b)

Acute persecutory experiences with great anxiety dominate the clinical picture: the patient is "framed", there is a "plot" against him. Definite depressive features are also exhibited. Agitation and clouding of consciousness are pronounced. Self-depreciatory ideas and fears are interwoven.

This clinical type differs from the majority of group I by the outstanding agitation and paranoid anxiety, and by the rather acute onset of the psychosis.

Analysis of the Clinical Pictures

As it has been clearly brought out by the catamneses, definite depressive content had been present in each case. One patient had "lost interest in everything"; she had been "ashamed" of herself and thought she was "not as good as others". Another patient was self-reproachful in addition to his paranoid fears and believed himself to be "the cause of a lot of trouble". In a third case, general retardation at the end of the agitated period pointed toward an underlying manic-depressive element, which achieved expression in a slight manic period preceding final recovery.

In every case clouding of consciousness, associated with a state of panic, was most marked. Only on this background of clouding, and nourished by the anxiety affect, do the paranoid notions arise. In two of the three cases it seems likely that the involutional age of the patient contributed to the anxiety-coloring of the clinical picture.

Although the precipitating difficulties could not be clearly determined in all cases, their psychogenic coloring was obvious.

As in (a), occasionally the slight reality value of the psychotic experiences became apparent by the way in which they were expressed: "It is as if my body has a kind of motor in it which makes it walk. . ."

An important feature in the paranoid experiences of this group was the close relation which invariably could be revealed between the origin of the delusional ideas and some reality situation. One patient's idea of being on a ship was precipitated both by his previous experience of dizziness and by the uniform of the male nurses which, because of the stripes on the sleeves, actually resembled a naval uniform. An attack of indigestion set off the idea of poisoning in another case. In the case of a third patient, fear of being "framed" by the police followed a joking remark of a police officer a few days before the onset of the psychosis.

GROUP II. CASES RESEMBLING ATYPICAL MANIC STATES Clinical Characteristics

After a more or less marked period of depression, an acute excitement-state with manic coloring and tendency to incoherence develops. Striking is the apparent shallowness of affect. Grandiose, religious delusional ideas are frequent; ideas of reference, misidentifications and hallucinations are also pronounced. Clouding is definitely present in some of the cases.

Analysis of the Clinical Pictures

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The clinical pictures in some important respects are a distinct counterpart of those in group I. The affective change, which is here one of elation with diminished inhibition, is the basic element. The emotional alteration is all-embracing and every other symptom, including the grandiose religious experiences, is more or less closely related to it.

The "manic" elation lacks vital depth as did the depressed mood in group I. The cheerfulness frequently appears "empty"; excitement prevails over actual elation. The lack of genuineness therefore impressed many observers more than the manic attitude itself. All these psychotic states are preceded by some sort of depressive period from which the patients emerge "elated".

The compensatory nature of the manic attitude is to a high degree responsible for the impression of shallowness. The elation is not convincing, and the observer feels that the manic exaltation is a thin cover which may break at any moment. Psychological motivation is much more transparent here than is the case in the typical manic excitement. A similar differentiation was made with regard to the first group also. In conjunction with this peculiarity in both groups, the accessory symptoms such as ideas of reference, slight persecutory trends, and auditory hallucinations, tend to become more prominent than in typical manic or depressive cases.

The compensatory nature of the manic attitude is frequently expressed in a special type of delusional ideas: the overcoming of all difficulties through the personal intervention of God. But whatever the content may be, it corresponds to the basic manic structure. The abnormal experiences revolve about the precipitating conflict and are meaningfully connected in each case.

It is noteworthy that the religious delusional content, whenever outstanding, appears in accordance with the cultural background of the patient: theological training and the atmosphere of certain religious sects form the basis of the religious "revelation".

As in group I, the "reality value" of abnormal experiences frequently appears slight, i. e. the symbolisms lack the immediateness of typical schizophrenic symbolism. The patient declares that he "thinks in symbols" instead of actually living in a world of symbolic significance.

Where clouding of consciousness is most marked, the psychotic experiences are changing, vague—in short, of a dream-like character. In the symptomatology magical-prelogical mechanisms appear. There is less centralization in the dream-like content and the connection with the precipitating problems is much looser. The symptomatology in this variety is unified, however, by the pervasive background of clouding. Furthermore, the psychotic content, although it is frequently fantastic and confused, lacks truly bizarre features.

GROUP III. CASES WITH OUTSTANDING MANIC AND DEPRESSIVE FEATURES

These psychoses are characterized by alternating periods resembling those described in groups I and II respectively. The single periods are frequently of a mixed type and the clinical pictures, therefore, more disintegrated. Confusion and incoherence are pronounced, excitement states predominate. Clouding of consciousness is distinctly present.

Remarkable is the low intelligence level in two-thirds of the patients in this group, a proportion which is much higher than in any other group.

Analysis of the Clinical Pictures

Alternating manic and depressive affective changes are the basic features. All other symptoms occurring in this group are, like those in groups I and II, more or less intimately connected with the manic-depressive alteration.

What distinguishes this group from groups I and II is not only that both atypical manic and atypical depressive features predominate, but that the single phases frequently resemble the "manic-depressive, mixed type" (e. g., depressed mood is associated with loosening of the inhibitions and excitement; manic elation appears without the corresponding overactivity, etc.). In addition, the clinical pictures exhibit those deviations from the typical manic and depressive states which have already been described in detail under groups I and II, thus further blurring the configuration which otherwise would impress the observer with its manic or depressive character. Consequently the single periods are less integrated than in groups I and II.

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Dullness and apathy again frequently replace the "depression", and the excitement consists more of resistiveness, destructiveness and combativeness than of manic elation. Incoherence and irrelevance are more frequent and more pronounced than flight-of-ideas. The manic origin of the incoherent talk, however, is often betrayed by the overproductivity, by distractibility, and by a tendency toward punning and rhyming. The seemingly irrelevant talk not infrequently has some "dramatic" quality; more detailed knowledge of the patient's psychological situation may reveal more sense in his rambling monologue than at first is recognizable. He is "performing" the rôle of a famous actor or of a mounted policeman and this performance forms the topic of his rambling talk. The psychogenic aspect, which was highly pronounced throughout the entire group, came clearly into the foreground when decrease of excitement brought greater coherence into the verbal productions.

It is noteworthy that the above-mentioned disintegration of the clinical pictures in this group was limited to states of high excitement. During the quieter periods, the basic manic and depressive structures became better recognizable. In this group also, clouding of consciousness seems to be the basis on which some of the schizophreniform symptomatology arises. It is probable that the low intellectual ability which was found in two-thirds of the cases also is responsible for some blurring of the clinical contours and the activation of "deeper" symptoms.

Only in the case of one patient with low average intelligence were definite experiences of foreign influence upon the mental activity reorded.

GROUP IV. EXCITEMENT-STUPOR STATES WITH MANIC-DEPRESSIVE TRENDS

In the three groups so far described, the basic structure was akin to that of the affective psychoses. Apathy and stupor on the one hand, and incoherence and excitement on the other, were but subsidiary features. In the next group this proportion has been reversed.

Clinical Characteristics

Excitement and stupor states alternate, the former being more impressive. Manic-depressive trends, which are present also,

range second. Incoherence and destructive activity are marked, but the excited patient continues to appear in some contact with his surroundings.

Analysis of the Clinical Pictures

Excitement is the prominent feature. The patient is overactive and usually destructive. Pressure of speech is high; the talk is usually so incoherent that it remains incomprehensible. Scolding and swearing are the main elements of verbal production; the mood is difficult to evaluate and apparently varying and labile. Irritability is pronounced. The patient resents not only orders but all intrusions into his world, but he is not really autistic as is one who behaves without reference whatsoever to his surroundings. He has his own kind of contact with the environment and his attention is easily diverted by external stimuli. He snatches at everything which lies or comes near him; he moves furniture about and tears up rugs and clothing. He may grab the physician's coat and deliver his rattling monologue as if he were talking to him, but he does not wait for an answer and soon his attention is drawn to something else. Singing and dancing are performed, and the patient's conduct often impresses the observer by its "dramatic" tone. At the height of excitement the patient is completely uninhibited: denudation and other exhibitionistic behavior are frequent; but still there is a definitely playful note in the patient's uninhibited and regressive conduct. In spite of the explosive irritability and the threatening talk, actually brutal actions hardly ever occur and within a second the wildest swearing may change to an outburst of hearty laughter. The emotional expressions are explosive and high-pressured, but they lack depth and continuity. Occasionally posturing occurs, and other features of the catatonic syndrome, as waxy flexibility, may be present during interpolated stuporous periods. The still more specific peculiarities of catatonic motor behavior are, however, absent: gestures and other movements still have expressive quality; there is no disintegration of the psychomotor activity. Regression to a more primitive level of motor behavior, stereotypies, and incomplete movements are not observed. There are also no true mannerisms noted. Instead, the clinical pictures are interwoven with various features of

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nof the manic-depressive syndromes. The incoherent, rambling talk in some parts exhibits distinct flight-of-ideas, and the tendency toward punning and rhyming may be pronounced. Distractibility and a certain contact with the surroundings—although of a destructive nature—are other features. The playful and (despite the displayed irritability) generally good-humored appearance of the patient's excitement and grandiose attitudes completes those features which permit a differentiation between these clinical pictures and true catatonic states. At times the excitement becomes even more markedly manic in every respect. In most of the psychiatric notes, the patient's behavior at some period is classified as "more manic than schizophrenic". Some relation of group IV to the manic-depressive entity is furthermore demonstrated by the occurrence of previous depressive episodes or interspersed periods of depression in the course of the excitement-state. Visual and auditory hallucinations, misidentifications and paranoid trends (poisoning, persecution) complete the symptomatology which at least partly arises from the background of clouded consciousness.

Of even greater structural importance than the clouding of consciousness is the high degree of incoherence of mental activity which at the height of the excitement results in complete fragmentation of the mental content.

In these periods no connectedness remains. When the excitement, however, recedes, the psychogenic coloring and a "dramatic" tone in the patient's behavior become more obvious. Borderline intelligence also may have been contributory in several cases in this group to the coloring of the clinical picture.

In two cases the periodic recurrence of similar excitement states of the type of group IV without distinct psychogenic or physical precipitation was outstanding.

GROUP V. CASES WITH PREDOMINANT SCHIZOPHRENIC SYMPTOMATOLOGY

The first four groups presented clinical pictures in which either affective changes or incoherent excitement-states characterized by clouding of consciousness and psychogenic aspect predominated. The "schizophrenic" symptomatology so far was mainly limited to lack of depth of the affective disturbance and to such symptoms

as incoherence, confusion, misidentifications, paranoid experiences, hallucinations (most frequently of the auditory and visual types), and slight cataleptic phenomena. Infrequent experiences of physical influence and of mental control originated obviously in the background of clouded consciousness.

Group V, however, contains those six recovered cases in which the psychotic syndrome approximates most clearly the schizophrenic type. Five cases (a) present a catatonic picture, while one case (b) demonstrates an acute paranoid reaction.

Clinical Characteristics of (a)

Excitement and stupor states occur, characterized by a high degree of autism. These states are associated with hallucinatory and delusional experiences of a specific type (struggle between good and evil, between God and the Devil). Signs of deeper psychomotor disintegration are not evident.

A typical development may be illustrated by the following abstract:

A. V.: For several years this patient, in whom a strong urge for "perfection" was a dominant personality trait, had suffered from obsessive thoughts, denying the immaculate conception, etc. Being a faithful Catholic, he had been troubled with religious scruples and had himself noticed the resulting growing tension. For four years he had punished himself for his ideational sins by sleeping without a pillow and restricting his diet. His mother's death, which occurred about one month before the apparent onset of his psychosis, highly upset the patient, who feared he would contract cancer (cause of mother's death). Economic insecurity, overwork, and lack of sleep seem to have been subsidiary precipitating factors. Two weeks before admission the patient, who was already in poor physical condition and undernourished, appeared depressed and discouraged, and refused to talk. He was admitted in a state of semistupor, being mute, negativistic, and resistive. Usually he lay in bed, his eyes closed or gazing at the light, shouting loudly at times. As he later revealed, he was "guided" during this period by "voices of the Virgin Mary." He relived his experiences regressively in the different periods as man, adolescent, small child, and infant, finally "vanishing into nothingness." He was "recalled by the Virgin Mary" and experienced a new development: baby, child, adolescent, man. His parents were "God and the Blessed Virgin." After less than two weeks he improved rapidly and appeared hypomanic. He was boastful and gave medical advice. Two weeks later he showed good insight and was discharged. After recovery he worked again fairly steadily. A little less than three years later he experienced a second attack after a period of hard work and insufficient sleep. The onset of this attack is characterized in the record as "hysterical condition of unconsciousness." The clinical picture was similar to that of the previous attack. The patient was "the second Jesus," had "supernatural powers." Again he soon recovered after a short hypomanic period. At the time of his discharge, he expressed the belief that there were two possibilities for him, either the religious way or the founding of a family. Choosing the latter course, he married four years ago. He passed a civil service examination and is now employed as a mechanic. He is getting along well in every respect. During the catamnestic interview the patient, an intelligent man. whose juvenile, slim figure contrasted with his gray hair, and whose "lecturing" manner of talking expressed some hypomanic energy, stated that he knew now how to keep his balance; All he needed was "taking good care of oneself, enough sleep, and a steady job." "It will never happen again."

Similar to the above manifestations are the precipitation, content, and course of the catatonic attacks in a second case of this group:

The patient has had three attacks of the same type, all centering upon sexual difficulties which he could not reconcile with the rest of his personality. He exhibited still more fantastic though well-connected and unitary experiences. He imagined the "regeneration of a new race"; "the sun was the father, the moon the womb, the earth the mother, and civilization was the testicle or seed of procreation." At times he felt that he was God; then again his father was Christ or he was the "third incarnation of God."

While experiences of cosmic dimensions appear most representative for this group, in a minority of cases the conflicts are fought out on an everyday-life level. In these cases the "dramatic" tone of the catatonic performance was most remarkable. The underlying conflict was clearly demonstrated in the psychotic behavior, and the psychogenic basis of the clinical picture was obvious. A verbatim excerpt of the monologue of a young male patient may demonstrate this peculiarity. During the entire psychosis of this patient, homosexual abreaction and heteroerotic wish-fulfillment on the one hand, self-damnations and attempts to overcome sinfulness on the other, were pronounced.

"Beatrice, I doubted you; I know I am happily married to you. I don't doubt you, Beatrice, bring me back home. Oh, I'll have to kill myself. Bea-

trice, appear to me in the form of a nurse. Boom, boom, ten times boom boom. Beatrice, I tried to make you queen of heaven . . . Son of God, judgement day, soon to be electrocuted . . . ''

At this point, although still understandable, the monologue became more disconnected; he asked God to kill him for his sins and then again he appealed to his girl for help and forgiveness. Spontaneously he cried: "I've got to snap out of it . . ."

Analysis of the Clinical Pictures

In every respect the type of excitement and the abnormal experiences within this group must be considered as catatonic, although manic and depressive features are probably more frequently reported than in the average cases of catatonia.

The most general and most impressive characteristic of this group is the psychogenic aspect which is revealed in the dramatic performance of conflicts in the everyday-life dimension as well as in the fantastic-cosmic experiences of the religious level.

Experiences of mental influence are pronounced only in one case of partly exogenous structure in which "delirious coloring" is also noted.

It is remarkable that definite signs of psychomotor disintegration which otherwise are so characteristic of most cases of catatonic excitement have not been recorded in this group.

The most typical catatonic reactions of this group represent an attempt to overcome the gap between instinctive urges and the contrasting ideal-ego by reaching a new harmony on the highest possible level: "regeneration of a new race"... "unity with the saints"... "son of Christ and the Blessed Virgin."—These main themes are encountered in several variations. This type of psychosis reminds one of religious ecstasies; it is still a problem whether the two may be differentiated psychologically in spite of the grandiose and fantastic coloring of the psychotic experiences. In the two most characteristic cases, the psychosis occurred in a person for whom the Christian dogma always has had the greatest reality value. One of the patients, a Catholic, in spite of complete insight for the other features of his mental illness, even now believes that he had actually been in contact with the saints and he refers to the confessions of Saint Augustine and others. Asked

why the saints should prefer to talk to a person in an abnormal state, the patient replied that it might be because the psychotic person is so sensitized that he can receive messages unnoticeable to other people. He mentioned his own sensitivity to noises during his illness: "I felt everything in an exaggerated manner."

Mention of the religious ecstasies leads us to an examination of the state of consciousness of these patients. They were able to recall many of their acute psychotic experiences, for which they did not claim any "fogginess" or "haziness". The lucidity of the rather coherent psychotic experiences was not actually diminished (the experiences were well connected). It therefore seems justified to assume that there was no clouding of consciousness in the usual meaning of this expression. Nevertheless—even if the "hysterical condition of unconsciousness" recorded in one of the medical certificates is disregarded—there is no doubt that these patients lived in an entirely different world from that of their real sur-This is confirmed by numerous catamnestic stateroundings. ments: "I was completely out of contact with reality . . . I recall putting an arm around my father's neck but I did not know it was my father . . . It was a complete lack of consciousness with flashes of light in between . . . I have some recollection of everything that happened but I did not know at all what really happened . . . ,,

In summary, the state of consciousness of most patients in this catatonic group permits the extensive formation and coherence of colorful new experiences. The psychotic content, however, is so impressive and exclusive that it completely embraces the patient's attention and cuts him off from contact with the reality situation. As one of the patients later stated, the illness started when he became more and more absorbed in ideas of which he finally lost all control.

The different structure of the newly-formed psychotic world does not permit its expression in the abstract logical manner of reality experiences. One patient, whose urge to express himself at this period was great, well realized the difficulty. Although his speech appeared fairly coherent, he stated that his thoughts were "confused and mixed . . . but I am not making myself clear . . . I can't seem to think."

There is thus present an ecstatic change* of consciousness which reminds one of certain types of confused states of psychogenic nature. The "war-neurotic" who relives a scene from the battlefield is an example. He also is out of contact with the reality situation and because of some emotional strain builds up an imaginary situation suited for abreaction; but his condition is still more related to an "everyday" situation and his usual way of expressing himself is more adequate, therefore his ability to express himself appears less impaired. To illustrate the chief difference between the "ecstatic" state and the usual clouded state with fogginess and amnesia, one might say metaphorically: in the clouded state the lights on the stage of consciousness are dimmed; in the "ecstatic" consciousness a different switch is turned on and brilliant lights illumine a new and strange scenery.

As has already been mentioned, not all pictures in this group refer to the "ecstatic" type; in others, clouding of consciousness and dramatic abreaction on the "everyday level" prevail; but some symbolic expression of the moral conflict (struggle between good and evil) is also present, justifying the classification of these psychoses under the catatonic group.

In one case in which the delirious element was pronounced, the occurrence of an at least partial exogenous precipitation could be assumed.

Clinical Characteristics of (b)

The only case of acute paranoid psychosis may be illustrated by the following abstract:

G. J.: This 30-year-old patient, who was known as a capable business man, had to be hospitalized three days before his intended marriage. He had for some time been under emotional strain provoked by certain conditions in the factory he directed. One month before the apparent onset of his psychosis his uncle (who had acted as a sort of foster-father to him) died and the patient became depressed.

Nine months before his breakdown he interpreted a harmless remark as a homosexual hint. After he became officially engaged (half a year be-

^{*}This term is applied because in accordance with its Greek origin (i. e., "standing outside") it characterizes the actual change in a person's contact with reality.

before the onset) he worried: his fiancée might think him immoral if she heard "anything wrong" about him. A few days before admission he expressed fear lest his fiancée be taken away from him. He interpreted the priest's sermon as a homosexual hint referring to him. He was suspicious and wanted to see a nerve-specialist. On the day of admission, early in the morning he tried to telephone to his fiancée, went out on the street in pajamas and was apprehended by the police.

On admission he was well oriented, restless, his conversation at times relevant, at times disconnected. He talked about religion, defended himself, said he had always been honest and decent. Later he brought up a homosexual episode in which he had participated. His mood was indefinite. Hypochondriacal ideas were expressed. He believed that his thoughts were being broadcast; he expressed the idea that his body was being painted with grease. Before a lumbar puncture, he was afraid he was going to be castrated. He talked aloud to himself; he "resisted seduction" by nurses and attendants to keep his bed "sacred" for his fiancée. On being questioned he said he was going to die: there was "nothing to live for." A few days later he showed some insight, saying that he must have been "off the trolley;" he dated all his troubles from his last church visit where he had "been excommunicated." At times he was excited and resistive. Ideas of reference were indicative of homosexual content. After seven weeks he had quieted down and was less negativistic. The following month he showed interest in home affairs but still referred to "strange happenings around the hospital." "The whole routine is like an initiation." "Weather conditions" had "some relation" to his case. "Electric disturbances center around me." He spoke about being "in a fog." "Who has charge of weather conditions around here?" He felt "quite confused."

Two months later the patient was much improved but still inclined to "read meanings." After his release on visit (about four months after admission) he got along well in spite of a serious disappointment caused by his firm's failure to keep its promise to reemploy him. His fiancée broke off relations with him. He went abroad for another firm and since has become a successful independent business man. One year after his discharge he married; he now has a seven-year-old boy; a second child is on its way. The patient seems to have fared consistently well since his recovery nine years ago and during the interview showed himself to be proud of his success. He has good insight with reference to his previous breakdown. A little "queerness" in his behavior may probably be explained by his embarrassment, as the examiner happened to call while guests were present.

Analysis of the Clinical Picture

In this case the clinical picture is perhaps the most clearly schizophrenic of all those of recovered patients. Ideas of reference and symbolic interpretations centering on alleged homosexual accusations are outstanding. The patient's "thoughts are being broadcast"; he "resists" the "temptation" by nurses and attendants in order to keep his "bed sacred" for his fiancée. "Electrical disturbances center around" him; "the whole routine is like an initiation"—all this without ecstatic remoteness, signs of clouding of consciousness being present apparently only for short periods. Still there is one feature which separates this case from most similar cases: the distinctly psychogenic foundation of the psychosis, which in every regard represents a homosexual panic precipitated by impending marriage.

Despite certain prodromal symptoms, the psychosis in general presented an acute paranoid picture which in its beginning to some degree reminds one of the paranoid anxiety-depressions in group I.

Interesting is the recovery and the achievement in business of this patient in spite of untoward conditions in his career. Remarkable also is his successful marriage one year after recovery.

COMMENTS AND CONCLUSIONS

As the previous descriptions and analyses show, five types of recovered schizophrenics might be distinguished. The first three of these may be grouped together because of their relation to the manic-depressive entity.

In spite of some obvious overlapping, each group is marked by definite characteristics. All five groups have one important trait in common, i. e. their "psychogenic" aspect. Psychic precipitating factors are clearly present in the majority of cases. The psychotic experiences for the most part are definitely centered upon the precipitating conflicts and (except for group IV, with its fragmentation of mental activity) the psychotic experiences are all well connected and at a fairly uniform level. In the first three groups, some of the psychotic experiences reveal their superficial rooting by their close connection with reality experiences as well as by the low degree of their reality value for the patient. The "dramatic"

quality of the psychotic performance in many cases is another trait which increases the psychogenic coloring of the psychosis.*

Consistent with this characteristic of the recovered schizophrenics is the fact that, excepting again group IV, in no case has a true disintegration of the psychotic personality taken place even temporarily. When the patient was acting the part of a mounted policeman or of a cinema star or when he was fulfilling some "cosmic task" as a "divine missionary", his personality was always unitary and consistent in itself. This peculiarity is in accordance with the apparent lack of deeper psychomotor disintegration in the recovered states.

Whenever some "deeper", i. e. more schizophrenia-like, symptomatology arises in one of the recovered groups, there is (with the exception of one case in group V) some distinct lack of contact of the patient with his surroundings. As opposed to many other simple, hebephrenic or paranoid schizophrenics, most of these patients did not produce "deeper" psychotic symptoms as long as they were in good contact with reality. As was demonstrated in the analyses above, the lack of clear apperception of the surroundings was in each case due to one of three different factors respectively. While clouding of consciousness** was most pronounced in the first three groups, the fourth group was characterized by general fragmentation of mental activity caused by an incoherent excitement state. In the fifth group the so-called ecstatic consciousness seemed to be of major importance. Thus an interesting development is revealed in the succession of groups classified by the degree of their clinical relation to schizophrenia as generally conceived.

*In an earlier paper (2) it has been pointed out that such features as coherence of the psychotic content related to precipitating conflicts and expressive quality of the psychotic behavior have a negative significance in the differential diagnosis of schizophrenia. It is remarkable that these features were found to be outstanding also in the various groups of recovered patients, whose general symptomatology led to the diagnosis of schizophrenia. Important features thus seem to be common to the clinical pictures in cases of schizophrenia leading to recovery and those in other abnormal conditions which can readily be distinguished from schizophrenia. The psychological characteristics mentioned refer to a localization of the psychotic disturbance in a "higher" (the so-called "psychological") stratum of the human organism than does the typical schizophrenic symptomatology. The conclusion, therefore, can be drawn that recovery in schizophrenia depends largely upon the prevailing involvement of the psychological stratum as opposed to the involvement of the "deeper", vital, stratum in cases of schizophrenia tending toward deterioration.

^{**}Because of the importance of dream-like experiences in certain clinical types, Mayer-Gross (3) has elaborated on their characteristics in his description of the dream-like form of experiences (Oneiroide Erlebnisform).

The first three groups, in which manic-depressive features, i. e. the affective disturbances, appear predominant, show relatively good integration of their psychotic content, which is still close to the everyday-life reality. Whenever "deeper" symptoms are present, they generally appear on the background of clouded consciousness.

The fourth group, which represents the intermediate stage of clinical structure, impresses one by the disintegration of psychotic experiences and behavior. The stream of talk is highly disconnected. Excitement and stupor outweigh the affective reaction. Because of the fragmentation of mental activity, the contact with reality is highly diminished although autism is not yet marked.

At the third stage a new integration has been created. Unity and coherence are reestablished here on an autistic level, the experiences reaching far beyond the human boundaries into cosmic spheres. As this stage marks the last group of recovered schizophrenics, it may be assumed that the next level of disintegration which is characterized by disorganization of the psychotic personality and the psychotic experiences and by autism is that of those types of schizophrenics who do not completely recover.

It may, therefore, be noted as one indication of this clinical study that complete recovery in schizophrenia does not occur spontaneously if certain levels of personality-disintegration have been

passed.

This statement does not solve the nosological problem of whether the different degrees of psychotic disintegration occur on the basis of the same disease process or whether they are pathognomonic of different disease entities.

The first three groups may be considered together, since affective changes are predominant in each and their structural patterns are closely related. In cases apparently similar to these, Langfeldt' speaks of "admixtures of manic-depressive, psychogenic (self-reference tendencies) and symptomatic (cloudiness, incoherence) trends . . ." and recommends the classification of these cases as "atypical schizophreni-forme states." In this analysis of the first three groups a further step has been made. It has been pointed out that the affective change is the basic structural element to which all other symptomatology shows some more or less

close relation. For this reason, one might seem justified in actually excluding the first three groups from the schizophrenia entity. The otherwise useful concepts of the "mixed psychoses" (Gaupp⁵) or of the "schizo-affective psychoses" (Kasanin⁶) cannot be profitably applied to these cases, since the assumption of a combination of manic-depressive and schizophrenic features would not entirely explain all their peculiarities.

An attempt to relate these groups to one of the accepted clinical entities would need to consider the classificatory scheme proposed by Kleist. This author tried to establish a large number of new clinical types which he characterized as "marginal psychoses" (Randpsychosen) of either the cycloid, the paranoid, or the epileptoid type. The first three groups here considered show some relation to Kleist's cycloid as well as to his epileptoid "marginal psychoses". It is interesting to note that Kleist also was impressed by the outstanding clouding of consciousness in a great number of acute psychoses leading to recovery which he therefore classified as "episodic clouded states" (Episodische Dämmerzustände). The fact that his procedure, in spite of many good observations, did not actually influence the differentiating attempts of clinical psychiatry in general is probably attributable to the impossibility of reaching a new solution in questions of differentiation merely on a descriptive-clinical basis in the manner of Kraepelin and his school. The writer believes that the outlined structures of his first three groups confirm this assumption as they can be understood only by means of a distributive analysis showing a certain personality type, definite precipitating conflicts, activation of manic or depressive changes and other psychotic symptoms, with the attack more on a psychological than on a vital level and veiled by clouding of consciousness or in some cases blurring of the clinical contours by the low intellectual capacity of the patient. Only the synopsis of these manifold features in this or a similar constellation can give us a real understanding of the structure of the first three groups in the sense in which it has been stressed by Adolf Meyer and his associates.

While affective features definitely outweigh all other symptoms in the first three groups, this is not the case in group IV. Here it seems even more futile to attempt a definite nosological classifica-

tion at the present stage of our knowledge of cause, nature, and boundaries of the functional psychoses. Incoherent excitement and stupor states characterize this group, the basic structure of which is neither an affective change nor an autistic-dissociative reaction. The writer would suggest that this psychotic type be differentiated from the other accepted forms at least temporarily as "excitement and stupor states," but without the pretension of having described a new clinical entity. What has been said above concerning the necessity of a distributive analysis is as valid for this group. It is probable that most of the so-called "benign stupors" as well as the so-called "periodical catatonias" fall into its realm.

One might say that the disintegration in the patients of group IV is as high as in any case of schizophrenia, but there is one substantial difference: it is the disintegration of an incoherent excitement state and therefore of a "superficial" and temporary type. When the excitement subsides, the former unity of the personality structure is restored.

As for the fifth group, finally, there can be no doubt with respect to the classification of its cases as schizophrenic states in spite of occasional manic-depressive trends. The great majority of cases present a clearcut catatonic picture, but the psychogenic and unitary aspect of the psychotic attack connects this group as much with the first four groups as it separates it from the average cases of catatonia. One might, therefore, be tempted to apply the term catatonic (schizophrenic) "reaction" to these cases (Popper, Kahn). The attacks are associated largely with an "ecstatic" state of consciousness and characterized by strong excitement. They thus reveal the extreme loss of contact with reality which was stressed above as an important factor in all recovered schizophrenics.

Of all recovered cases, one remains (group V) which has only a psychogenic aspect in common with the other recovered cases. Except for this one trait, the picture, which is that of an acute paranoid state, is most typical for schizophrenia. Even if an affective disturbance (panic-state) may have been present in the beginning, the further course of the psychosis shows a clear, well-oriented patient in an indefinite mood, who produces a large num-

ber of schizophrenic experiences. This case is unique in the writer's material; it will be necessary to find some similar case experiences before attempting to draw more definite conclusions.

SUMMARY

Five clinical types of recovered although not specially treated schizophrenics, marked by definite characteristics, are described and analyzed.

While affective changes (manic and depressive features) are most outstanding in the first three groups, the fourth group is characterized by alternating states of excitement and stupor. The fifth group, with the exception of one case, consists of catatonic states. The remaining case exhibits an acute paranoid picture.

Strong psychological coloring with centralization of the psychotic content upon some precipitating conflict is common to all recovered cases.

Coherence of the psychotic experiences and preservation of personality integration are marked in all groups except group IV, in which the incoherent excitement causes general fragmentation of mental activity. "Deeper" schizophreniform symptomatology arises on the basis either of clouding of consciousness, of incoherence and fragmentation, or of the so-called "ecstatic" consciousness.

While thus the first three groups show good integration of the psychotic content and the fourth group, due to incoherent excitement, is marked by high disintegration, in the fifth group the third stage is reached: a new integration has been created on an autistic level. Next in this development, disintegration on an autistic level seems to be confined to those types of schizophrenics who do not spontaneously make complete recovery.

From the nosological point of view, it seems justifiable to exclude the first three groups from the schizophrenia entity because the affective change is here the basic element. The clinical structure of these groups can be understood only by means of a distributive analysis.

The fourth group stands by itself, as neither affective nor schizophrenic symptoms predominate. The cases of the fifth group, with the exception of one, might be considered as catatonic "reactions".

In all clinical pictures of the recovered schizophrenic patients there are some features recognizable which deviate from the classical picture of schizophrenia.

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HOMESICKNESS AND THE MOTHER'S BREAST*

BY EDITHA STERBA, PH.D.

The theme chosen as subject of this paper is one of great current interest. We have daily before our eyes the spectacle of European peoples, of millions of human beings torn against their will from the soil to which they are bound, transplanted under wretched circumstances into strange surroundings. The loss of the fatherland has today become so general that one may refer to it as a typical experience of civilized mankind.

This experience is as a general rule extremely difficult for any human being to endure. Often accompanied by typical reaction formations, it requires a certain time for elaboration even in those cases where the external conditions have not become worse.

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That one's home country—the land of one's fathers—represents the mother figure, and that the loss of country is experienced as the loss of the mother, is so generally observed and has been sung by so many poets that it has almost become a platitude.

The writer ventures to bring a contribution from the domain of child psychology to this universally recognized problem, because in her opinion the observations made concerning children and the analytical use of these represent one of the most important sources available for an understanding of the great problems of mankind.

The material about to be presented is taken from personal observations made upon a small girl, five years of age, who, like so many children in these times, was obliged one day to leave her country. Although the new conditions to which the child came were the best imaginable, although there had been no traumatic experiences bound up with leaving her country and the child had never been separated even for one day from her parents or her brothers and sisters, and although the nurse who had taken care of her since her birth was still with her, she reacted to the loss of her country with what was, for a child of her age, the most astonishingly severe nostalgia. She complained unceasingly about all that she had had to leave behind, grieved visibly, became silent and reserved, refusing to eat and losing weight. It was evident that she could not

^{*}Read before the American Psychoanalytic Association, at its forty-second meeting, held in Cincinnati, O., May 20, 1940.

overcome her grief. This behavior was in direct contradiction to the psychic development of the little girl which had until this time proceeded, generally speaking, along normal lines. The object of her grief, what she missed so strongly, was always the same—the town in which she had been born and brought up, the country where she had lived, her fatherland for which, as such, until the time of her emigration, she had never shown any particular love or interest.

The psychic condition of the little girl was shown clearly in the countless stories she kept dictating to her mother soon after she had left her country and had come to understand that from now on she would live in a strange land. All the stories were illustrated by characteristic pictures which she had drawn herself. Among these stories only two of the most striking have been chosen which indicate plainly the direction in which we must look for the cause of the little girl's homesickness.

The first story is entitled "The Tale of the Little Dwarf Child and the 700 Year Old Oak Tree", and begins thus: "Once upon a time, there was a poor woman who had a little child that was as tiny and as stupid as a little stick. As the woman had not enough money to keep the child and had nothing to give him to eat, she told him to go out into the wide world to look for food for himself." The child went out into the wide world as he had been told, and found, buried under the 700-year-old oak, a little hen which instead of eggs had laid gold. By magic, this little hen came to life again, "and," the story goes on, "the little hen laid a gold piece for the child. Then the gold piece was not a gold piece any more but turned into a wonderful house, where the child was very rich and had a great deal to eat." At the end of the story, the hen is given a golden ribbon so that it can follow the child wherever he goes and cannot run away.

The second story takes place in a forest where there are a great many birds, but instead of living in nests they live in little houses. Among these birds is a mother bird and the story says: "She had 11 little ones that had all been eaten up by a cat, except the eleventh which she had been able to save. While the children were still living, the mother had been able to give them no more to eat in one day than a little fly or a small worm." And so she thought: "It's

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a good thing the children are dead, because otherwise they would have just died of hunger. Now perhaps I shall be able to feed the one that is left." The next day the child said to his mother: "It's terrible here in the forest because I haven't enough to eat and you haven't enough food to give me and we're poor and you have no little bag woven out of leaves to put the little flies in and you haven't got a pointed beak either." And then the child said to his mother: "I must go away, because a fox bit off the point of your beak so that it isn't sharp enough any more to hunt for a worm and to feed me." The mother lets the child go away; she herself finds a little ship and manages to go in it to a strange land where a good fairy makes her beak sharp again by magic and procures her a little leaf bag too, so that now she is again able to feed her child whom she finds there. She also finds a house for them to live in where they are wealthy and have no more troubles.

We see clearly in both examples the fear of starvation, the anxiety that the mother will no longer be in a position to maintain and feed her child, since she has not a beak sharp enough to hunt for things to eat and has no little bag in which to collect and store food. This material is so patent that it does not require the support of the pictures, all of which represent long, thin and impoverished figures. In anticipation of a point which will be taken up later, it is pertinent to note that the blame for the children's starvation was ascribed exclusively to the mother; the father does not appear in the story.

The homesickness of the little girl was at this time at its highest point. She experienced a genuinely severe depression, was markedly introverted, did not wish to eat at all and affirmed, in the face of affectionate efforts to comfort her, that no one could ever replace what she had lost.

At this time she began to compose poems, which she had never tried to do before. The poems were mostly elegiac sentimental complaints over her lost happiness and the lost fatherland, showing unusual maturity and poetic talent. One day she astonished her mother by producing a long poem which she had composed as a farewell to a dearly loved dairymaid in her own country:

Peperl, in your rosy garland Come along with me and dance High on the Alm. Pluck the flowerlets for me Make yourself a pretty wreath High on the Alm. Bring a cow down here to me Lead her before our house— One that is kind and good. Looking at the little flowers My sadness flies at once away, Thinking of you and me Peace comes to us. You love me and I love you High on the Alm. Tinkling bells at early morn Goodbye, goodbye Autumn is coming now Goodby, goodbye Cows both large and small Are leaving the Alm, Flowerlets both large and small Are fading there Sad, sad is my heart . . .

And at the end of this long complaint are these lines:

Now I must wave so sadly, Now I must go, Dear cows both large and small That down the Alps are coming Farewell, farewell.

After dictating this poem to her mother, the little girl confessed what it was that she longed for most. In her home country she had spent every summer with her grandmother who lived on an estate in the Alps, on which there was a farm. She was particularly attached to this estate, was always thoroughly happy there and had the feeling that meadows, wood and house were her own property. Naturally, the cow-barn on the farm interested her greatly and she

was often to be found there at milking time. She herself was sometimes permitted to try milking the cows and she had formed a great friendship with the pleasant motherly dairymaid. During the summer after a baby sister had been born, the little girl's interest in the cow-barn became notably intensified.

It was always a grief to her to leave the estate at the end of each visit, but she used to comfort herself with the hope of going back at Christmas, at Easter and in the summer. It was precisely at the time when she had to leave her home country that the prospect had arisen of a visit to the estate in the mountains, and the little girl had perhaps unconsciously hoped that the mysterious journey would end up on her beloved estate. Her disappointment was therefore the greater when, after a night spent in a sleeping-car, she woke up in a strange country where the people spoke a foreign language.

The poem written to the dairymaid and the stories in which the fear of starvation played so great a part made it clear that the departure from her own country and the transplanting into a strange land were experienced as a repetition of the trauma of weaning. Interesting confirmation of this is to be found in what is about to be reported. Although the little girl, who was weaned at six and onehalf months, had manifested no apparent reaction to the weaning and had on the contrary shown great interest and good appetite in eating with the already familiar spoon, at the time of her grief over the loss of her country she returned to a keepsake from her suckling time. While being suckled, she had been given a so-called dribbling-cloth which, after the weaning, she always demanded to have by her when she was going to sleep. She would press this "dribbling-cloth", which they used to put around her when she was taking the breast, close to her and would fall asleep sucking her thumb contentedly. Already at this early period, she knew the shape and the kind of material of this dribbling-cloth so exactly that she took very badly any attempt to mislead her by substituting a similar napkin or handkerchief. The dribbling-cloth was really a sort of talisman for her during the first months after the weaning, a comfort and protection in all difficult situations and dangers. At the time when she was first vaccinated, this dribblingcloth comforted and soothed her better than anything else if she

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was in pain. And now that her depression and despair were so great over the loss of her home country, she asked once more for the dribbling-cloth which she had not had for three years, insisted on having it beside her when she was going to sleep, and saw to it that it was never washed or changed.

The dribbling-cloth which the little girl insisted now on having always with her gave the mother the clue to the cause of the homesickness, so unusually severe in a child who had never yet been separated from her mother. She explained to the little girl that her homesickness was connected above all with the cow-barn and with her own longing for the mother's breast which had so greatly increased since the birth of her little sister; she reminded her that at the time of the baby sister's arrival she had comforted herself with the cows. The child agreed enthusiastically to this interpretation: "Of course the cow was better than your breast, Mummie," she said. "She has four nipples and she belonged all to me," and she added unhappily, "but now nothing belongs to me any more!"

A striking remark made at an early stage of the child's development confirmed the assumption that her sense of possession was clearly of oral origin. The first distinct syllables the little girl pronounced related to her dribbling-cloth which, as was observed, she had always wanted to keep with her after she had been weaned. When she was seven and one-half months old she would seize it from the grownup, who in play would pull it away from her. Then she would cry: "My, my," which meant: "It's mine, it belongs to me." From this game one could plainly observe the development in the child of the sense of possession.

Let us summarize the material presented in order to draw some conclusions of a general nature: The little girl, brought up in comfortable circumstances, has to leave her home country with her family and her nurse. This event occurs in no way under traumatic conditions, and although the family is for a time in a state of migration, it does not suffer from any sort of distress or want. After some months comes the settling into a new home, and life is continued under as favorable circumstances as those to which the child has hitherto been accustomed. However, in spite of this she begins shortly after the departure from her home country to suffer from what, for a child of her age, is a most unusually severe

attack of nostalgia. The material shows that the fatherland does not, in this case, represent the mother as a whole, but, from the oral viewpoint of the child, the most important part of the mother, that is to say, the mother's breast. On the arrival of the baby sister, who was born one year before the departure from the home country and whose birth forced the little girl to the final elaboration of the trauma of weaning, she became fixated with exceptional intensity on that part of her country which could best afford her an oral substitute, namely, the estate belonging to the grandmother where she had had the opportunity of milking the cows.

She reacted to the loss of this part of her country with an obvious depression in which fantasies showing the fear of starvation played the central rôle. The loss of country was, without the least doubt, experienced as identical with the trauma of weaning.

Observations of the behavior of grownup people lead us to conclude that the loss of the fatherland is experienced, or is at least often experienced, as an oral loss of this kind. The depression, the typical low spirits from which all emigrants suffer at first and which not infrequently break out into melancholia, shows in itself the oral nature of the loss of the fatherland. Nearly all emigrants pass through the psychic experience of a typical kind of anxiety, the fear of starvation, which is just as strong with those who are financially secure as with those who have nothing at all and which is, generally speaking, quite without foundation in civilized coun-This anxiety is to be observed also in immigrants in this country where the wealth of foodstuffs, the readiness to help on the part of the people, and the excellence of the organization of charitable assistance virtually exclude the possibility of starvation. It is this same anxiety which makes it impossible for many to leave their home country although they may often be obliged to live there under wretched conditions and may come near to starying. Even when such people have the material possibility of living in a foreign country in far better circumstances, they are compelled by their own inner condition, that is to say, the oral fixation to the mother's breast, to remain in their home country, in spite of the fact that their country no longer provides food for them to live.

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GROUP PSYCHOTHERAPY: A STUDY OF ITS APPLICATION*

BY LOUIS WENDER, M. D.

Group psychotherapy, as discussed here, is a method of treatment used in a mental hospital, wherein group interaction is a basic medium for the release of unconscious emotional difficulties The premise of group psychotherapy is that the human individual is a "group animal", seeking a satisfying niche in his social setting; that he is a social product, whose inhibitions and repressions are motivated by the mores of the group; that difficulties in adjustment and failure to express his emotional troubles are the result of his inability to face the group and to find his place in it. He must repress his thinking and adapt to the demands of a complex group, and his failure to achieve this adaptation produces a neurosis or a psychosis. Place this individual who has failed in the more complex setting into a small group which is friendly to him and which is composed of others suffering from allied disturbances, and he will become enabled—when he learns to understand the problems of the others—to associate himself with them, to release his aggressive tendencies, his hates, his loves and his wishes, without accompanying sense of guilt. By working out his difficulties and achieving adjustment in the small group, he becomes able to face the large group (the world) and to handle his emotional problems, social or other, on a normal basis.

While the group psychotherapy method utilizes psychoanalytic concepts, the approach differs widely from the techniques of Freudian analysis. Primarily, this approach is more active, involves more active participation on the part of the psychiatrist. Furthermore, instead of the analyst-to-patient relationship which exists in psychoanalysis, we deal here with a group association involving the psychiatrist in relation to several patients. The transference possibility becomes that of a father-sibling situation, not confined to one patient as in analysis, but representing a father-to-whole-family influence which, hypothetically speaking, should be conducive to better results.

In psychoanalysis the action takes place between two people and possibly is more contributive to the release of unconscious ma-

^{*}Read before the American Psychopathological Association, Cincinnati, O., May 19, 1940.

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d aterial. Sooner or later the transference enables the patient to talk freely without anxiety, and as his superego and ego mechanisms become mobilized, he is capable of functioning normally. In the group, thinking is more censored at first and one may encounter difficulty in obtaining release of material. The initial obstacle is overcome by individual psychotherapy in private interviews. In the course of time, as the individual assumes his place in the group setup, as he gains a perspective on human behavior in general and becomes desensitized with reference to his own problem, material is produced freely. The fundamental principle underlying group psychotherapy is based upon the interrelationship and interdependence of human lives, also upon the theory that neuroses, per se. and even psychoses, are the outcome of a civilization in which the ego and superego conflicts imposed by the mores of society inhibit the expression of a number of instinctual drives. There follows an accretion of conflicts with the family group and later with society, which the individual cannot resolve. If we can reorient him, lessen his fear of adjustment, and permit the carrying-out of his activities in the group without repressions or fear of punishment, it is safe to say that many emotional difficulties, with their concomitant asocial behavior, can be eliminated.

The ground for neurotic behavior is laid early in life, commencing with the Oedipus situation, followed by sibling rivalry, then by maladjustment in school, etc. Thus we see that as the group becomes larger and the requirements of adjustment more complicated, the neurotic manifestations become more severe. In some instances, when treatment is initiated before the individual has become a social incubus, it may be possible to avoid hospitalization. At hospitals and sanatoria where severe neuroses and borderline mental illnesses are treated in voluntary patients, group psychotherapy has been stressed because it is believed that in this way not only are the individual's emotional problems treated but also he is enabled to learn anew how to live with people, this facilitating his ultimate social adjustment. Results obtained by Burrow, Schilder, Bender, and others over a period of years, warrant its continued use. While the staff of this hospital is so planned as to permit each patient to receive frequent individual therapy, and while the group method is utilized because of its added therapeutic benefits, it would seem that its use is even more essential in institutions which are understaffed. The procedure is undoubtedly applicable to state hospitals and to mental health clinics, provided modifications are made to suit the particular circumstances.

The program of group therapy, as the writer understands and utilizes it, is composed of two parts. (1) In the first place, the en. tire life of the hospital is so organized as to afford the patient a reeducation in group experience. The patient is made a constituent part of the hospital, sharing in all its activities, whether it be rontine work or recreation. While each is given responsibilities in keeping with his skills and other capabilities, he performs his work as part of an integrated plan in which the staff participates. Those patients nearing recovery are encouraged to become friendly and to exchange ideas with newly admitted patients. Instead of isolating the patient and keeping him in a room or planning a rigid daily schedule for him (which may be effective in certain cases), these disciplines are eliminated to a large extent. The individual becomes a member of a group which has common aims and responsibilities and which is friendly to him. His hostility is reduced. his emotional tension is lessened, his impetus to do his share of productive work is strengthened, and eventually symptom production diminishes. (2) The second part is the actual group psychotherapy, the technical aspect of this approach, which requires the patient's attendance at the group sessions and in which, as the members of the group become more integrated and familiar with one another, the patient loses his feeling of being an "individual sufferer".

In a previous paper on the dynamics of group psychotherapy, the writer elucidated the principles of this method, stating that the mechanism of this process was based upon the following elements:

(1) Intellectualization: We feel that there is a synthesis of the intellect and the emotions which dominates every phase of our lives and is the basis of all social adjustment. There are intellectual disciplines such as the Yoga philosophy, the application of which results in the regularization of emotional responses through a self-determined discipline. What we term insight, or emotional acceptance, may have similar components of self-discipline. While in group psychotherapy we in no way strive or profess to develop

an intellectual discipline, it does tend to give comprehension of emotional reactions which enables the patient to understand new developments in his everyday behavior.

(2) Patient-to-patient transference: In the theory of psychoanalysis the idea of transference, rejection and introjection plays an important rôle, and in group psychotherapy the patient-to-patient transference is capitalized. This is used to facilitate the transference to the therapist through the identification of one patient with another who is already in rapport. It is believed also that the relationship established among patients in the group ultimately takes an outward course, embracing a wider area of interests and tending to produce normal socialization.

(3) Catharsis: In this method, "catharsis-in-the-family" takes place. In group discussions, we bring out the sibling rivalry and the patient is able to obtain understanding from the other patients or from the therapist (his "father"), or he is able to rebel in the group against his "siblings" (the other patients) or his "father" (the therapist) without guilt or anxiety, a thing which is prohibited to him and which he is obliged to repress in the family. This catharsis is a healthy one: it gives the patient self-confidence to express himself, removing his feeling of guilt and inferiority.

(4) Group interaction: Several elements enter into group interaction. In the group, the patient develops criteria for evaluating his own problems against those of others. The patient who prior to hospitalization regarded his problems as unique, peculiar to himself, learns through the exchange of the group that many of his fellows have similarly founded ego conflicts, which prompts him to discuss his problem far more frankly. His drive to become well derives greater impetus from his identification in the group as the sibling rivalry is directed into constructive instead of destructive channels.

In psychoanalysis, the analyst may represent the father or the mother. In group psychotherapy, the psychiatrist plays the same rôle, except that he plays it in relation to a larger number of persons simultaneously, all of whom must be treated as equals to obviate sibling rivalry. The problem of "equality" and avoidance of rivalry becomes intensified in a hospital setting, where the symbolic rôle of the psychiatrist is strengthened and he is regarded as

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almost omnipotent. It is with the view of eliminating envy and rivalry which are inimical to treatment that every effort has been made to make this possible. All patients at this hospital receive the same physical facilities whether they are nonpaying patients or whether they pay the maximum rate. This policy of equal apportionment of benefits is applied also to individual psychotherapy, in order to avoid giving the patient any objective basis for feeling that he is discriminated against or that he is a less-favored child Patients are encouraged to express any feeling that they have been wronged or any jealousy regarding treatment or attention, since many neurotic patients have a tendency to be paranoid. Inasmuch as a neurosis is a pattern of regression to infancy and childhood. great care is taken to avoid anything which might give rise to feelings of jealousy or envy. Although the hospital setup resembles that of the family group, the just apportionment of duties, responsibilities and benefits encourages the establishment of transference between patient and patient, instead of the sibling rivalry which flourishes commonly in most homes. Better understanding of human behavior fosters greater tolerance for the faults of associates and sows the seed for genuinely friendly relations among patients. With this foundation, psychotherapy for the group is a natural sequent.

Group lectures are given at this hospital once or twice weekly to the same unit. Up to the present time there has been no mixing of the sexes, but such an experiment is contemplated with carefully selected men and women patients attending the same class. Obviously, certain patients will need to be chosen with great care.

At first no new patients were admitted to groups already established. Recently the policy has been changed in this respect, so that new patients are now permitted to enter groups as soon after their admission as, in the opinion of the staff, they become ready for such participation. The only difficulty encountered is that with the admission of new patients the therapist has to review the mechanisms and principles of group psychotherapy for the benefit of the newcomer. On the whole, this is not really a drawback because such a review is advisable from time to time with every group, continual repetition being essential to drive home certain points and ideas.

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In analysis, through free association on the couch, a gradual comprehension ensues. Even in this process negative transference and resistance develop, so that the patient refuses to accept his own statements when they are interpreted to him. In group psychotherapy, which is a more direct approach, patients experience considerable difficulty in accepting direct interpretations, and one can explain this readily as a conscious understanding with an unconscious resistance. However, because of the constant presentation of new material in which similarities are found, eventually the intellectual grasp of the problem brings about the acceptance of certain interpretations, at first as relating only to other people and finally as relating to oneself. It is through continual repetition of material that the patients begin to accept their behavior problems and their neurotic symptoms as understandable compensatory or defense mechanisms for their emotional difficulties.

One cannot overstress the necessity for taking care not to direct the approach too obviously to the problem of the individual. Indirect reference is much more effective. It is imperative that a history be obtained and a mental examination be given before the patient is admitted to these sessions, so that the psychiatrist may have a thorough knowledge of the patient's personality, his history, psychosexual life and all the other material pertaining to his emotional difficulties. Although in the present instance this is done by an associate, the writer is well informed concerning each patient's case and the patient has had several private interviews preliminary to his entrance into a group. When the therapist wishes to approach this individual's problem in the group, he will describe a case sufficiently disguised and modified for the patient not to recognize it as his own. He will, however, realize that it bears some similarity to his own difficulty and he may enter into a discussion of the problem, accepting or rejecting the conclusions of the group. This gives the therapist an opportunity to discuss the subject in much greater detail and usually leads to a request for a private interview, when the patient accepts the idea that his own social behavior and symptom projection are the outgrowth of a repressed conflict. Occasionally resistance is encountered; generally, however, the patient begins to talk freely and the subject is discussed openly with him before the group when he becomes ready. It is necessary to have only one or two patients begin to discuss their problems and to recite their histories. By sheer contagion requests ensue from other patients to open their problems to group discussion; thus a positive transference is established and resistances are reduced to a minimum. This group discussion leads to a sense of kinship; patients discuss their troubles with one another—occasionally even a member of the group whose intellect is superior and who enjoys the respect of the group will be approached after a session by other patients for further elucidation of the matters discussed.

The objective is to afford an understanding of mental mechan. isms, and the material is presented in a tempo and volume consistent with the intellectual composition of the group. Symptom formation is discussed. If necessary, analogies are drawn between physical disease and emotional disturbances causing disease. The concepts of conscious and unconscious are explained. The significance of dreams is gone into. Sexual maladjustments are discussed. The results of sibling rivalry, hate and love, and the mechanisms of expression are expounded. An effort is made to show that the patient's attempt to justify his conduct and behavior is pure rationalization. The patients are urged to be honest with themselves and to delve into their own unconscious thinking after the various mechanisms have been discussed. Although at times difficulty is encountered in having patients give their life histories and their symptoms, sooner or later each patient is only too eager to have his case discussed publicly and the men, in particular, go into great detail concerning their sex life and their inhibitions. Sexual perversions and fixations are discussed freely in both groups. For the past year at this hospital, the occupational therapist and the head nurse have participated in the women's groups because it was felt that this would lead to greater ease and confidence, since they had intimate contact with the patients. Results have confirmed the belief that this inclusion was wise. The physicians who treat these patients individually are apprised from time to time of the content of the discussions and are informed especially which patient's case is under discussion, so that the individual and group therapy are integrated, with the director outlining the mode of approach in the continuance of the treatment. Experience has shown that the policy is desirable and makes for consistent treatment.

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The writer's advocacy of group psychotherapy proceeds from experience that this type of treatment is a valuable adjuvant to individual therapy and that it enables the patient to achieve social reorientation in the course of treatment. Where the possibilities of intensive individual therapy are restricted for want of staff, this method, properly modified, seems an expedient approach. The patients at this hospital are enthusiastic about it because it removes the feeling of stigma attached to having been mentally ill and because they claim that it has enabled them to understand their behavior in the light of unconscious drives.

It is the belief of the writer and his colleagues that it would be far better if every physician were able to assemble his patients once or twice weekly, to consciously become part of the group he is treating, instead of merely making rounds in a dignified manner. A better rapport would be established and possibly better therapeutic results would be obtained. In hospitals where the opportunity of group interaction is capitalized, the nurses and doctors participate in all the activities with the patients and become part of the unit. It may be observed that the staff thus loses dignity, but in the long run the respect of the patients is acquired because they are treated as equals who have become sick.

The writer wishes to close by quoting a letter from a former patient, a college graduate, who manifested symptoms of a severe psychoneurosis with anxieties and fugues, in the course of which he was on the verge of coming into conflict with the law. He was hospitalized and at first bitterly resented the whole course. His letter illustrates most graphically what has been said above with respect to the effects of group psychotherapy:

"When first I was told that we were given a 'lecture' once a week by the medical director, my memory carried me back to college days. I envisioned an improvised classroom with a desk at the head, for the doctor; then, a 40-minute talk by the psychiatrist on some abstract phase of mental hygiene and, probably, a 20-minute question period.

"I followed the group in to the first of these 'lectures' with mingled curiosity and expectation. But it was nothing like a for-

mal classroom or lecture hall into which we entered. It was a cozy sort of enlarged parlor, filled with comfortable sofas and armchairs. We ensconced ourselves, comfortably, into these homey seats and lit up cigarettes and pipes. Ah, I thought, this is more on the seminar idea.

"But my surprise was equaled only by my sense of revulsion when the doctor opened the session and, with smug calmness, said, 'Come on, Jack, tell us about yourself.' As I look back upon that day and hour, I think that, had the psychiatrist extended that revolting invitation to me, I should have made some angry retort to the effect that my problems and symptoms were not for popular consumption—they were nobody's affair except my own! That I should talk about my emotional difficulties in the presence of a bunch of neurotics was more than inconceivable! It was odious, infuriating, a flagrant breach of confidence on the part of the doctor, and a few other unspeakable things!

"Well, 'Jack' didn't seem to mind-nor did one or two others whose symptoms, histories and private lives were shamelessly exposed. Then, all the neurotics suddenly became psychiatrists. Anyone who desired to, asked questions, highly personal questions of the patient under discussion, and advanced theories as to the causes of his particular ailment or 'breakdown'. When the doctor finally propounded his own ideas on the subject, he did seem to shed some light on the specific case of one or another of the patients 'on the carpet'. But when we filed out of this first 'lecture'. I felt too deep a sense of intellectual nausea and emotional resentment to acknowledge any value whatsoever in what had transpired. Besides, even if I should have been impelled to concede a modicum of soundness and truth, as regards 'Jack's' or 'Harold's' or 'Louis's' particular case, what did all that have to do with the rest of us? Or with me? My case was not only unique, mystifyingit involved very, very personal issues which I was determined never to permit being bandied about in public. I resolved to stay out of these lectures in the future.

"When the next session came around, however, my sense of curiosity was stronger than my resentment. I decided to attend, not, however, until I had urgently requested that my particular case be limited to the *sub rosa*, personal interviews in the psychi-

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atric sanctum of the doctor's office. Thus fortified, I went to the 'lecture', there to witness a repetition in form, though not in content, of the proceedings of the former session. This time, my feeling was far less rebellious. My attitude became sort of academic; maybe my interest in other people's symptoms was a morbid one. Or, perhaps, hearing the open discussions of the others' lives and ailments affirmed, in my own mind, my own superiority and the uniqueness of my problem. Whatever the reason, the lessening of my own restraint allowed me to relax and I found myself growing increasingly absorbed in other people's woes and difficulties.

"It was after the third or fourth session that some of the ideas and principles which took form out of the discussions began to seep into my own consciousness. I found myself tending to apply those general principles and causes behind emotional conflicts to myself. The completely personal aspects of my case, which were discussed in my interviews with the psychiatrist, seemed, at times, to dovetail with the general fundamentals revealed at the 'group therapy' sessions. My interest in the difficulties of my fellow-patients grew into a sympathy. I commenced to recognize the truth of a bit of elementary psychology I recalled from my college years. Here I was, an individual, with specific and peculiar interests, tendencies and characteristics, a member of a group. I actually felt, rather than just knew, the connection between the gregarious or 'herd' instinct and the inevitable emotion of sympathy with one's fellows which it generates. My early rebelliousness and resentments, as well as my conviction of personal uniqueness, gave way to the revelation that I was not much different from others. I began, with a certain feeling of exultation, to realize that there was a full body of scientific knowledge which could be constructively applied to my ailment, as it had been and was, daily, being applied successfully to countless others.

"By the time the ninth or tenth session rolled around, I found myself, often, on the edge of my seat, itching to talk about myself. I wanted to give illustrations of some of the principles from my own career of errors and consequences. My sense of shame was gone. It was no shame, there was no longer the suggestion of a stigma attached to the idea of being mentally or emotionally ill!

Aside from the gradual breaking down of my artificial psychic and social defenses, the loss of false sense of shame, and the disappear. ance of most of my stupid repressions and inhibitions—all of which enabled me, more freely, to reveal myself to the doctors and to myself-I learned, from my experiences in 'group psychotherapy'. a great and invaluable lesson in real tolerance. The miniature so. ciety at the hospital, reflecting in a small way all aspects of reality and responsibility one must face in the outside world, was an ideal society—especially from the standpoint of pure democracy. This democratic quality seemed to be subtly emphasized at the 'lectures'. where absolutely no distinctions appeared as to social, economic or intellectual status. The college professor, the clergyman, the lawyer, the artist—and the butcher, the plumber and the candy-store owner—all were on a perfect par with each other. Not only was the fact of emotional illness the common leveler; the manner of treatment and the uncompromisingly democratic approach of the psychiatrist provided a powerful common bond. I found much of my intellectual snobbery vanishing as a result of the uniting and leveling force which the openness and candor and undiscriminating honesty fostered during the sessions in which we received treatment as a group.

"Be honest with yourself!' This was the byword, the slogan for right living which crystallized out of all we learned at the 'group therapy' meetings. The recognition, fundamentally, that each of us, the rich as well as the poor, the cultured and talented as well as the unlearned, must acknowledge his imperfections and limitations and face the obligations and goals of life accordingly, was the vital lesson of life I learned from the mutual association and understanding fostered by the method of 'group therapy'."

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ELECTRIC CONVULSION THERAPY IN MENTAL DISORDERS

BY L. KALINOWSKY, M. D., AND S. EUGENE BARRERA, M. D.

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Convulsion therapy in mental disorders has been widely utilized during the past few years. The usual methods of inducing convulsions have been chemical, involving the intravenous injection of some substance such as metrazol. The electric convulsion treatment does not pretend to be a new general type of therapy but presents a definite technical advance in the field of convulsion therapy. It consists essentially in the use of electricity in the production of the convulsion, substituting for the generally used pharmacological means. Generally speaking, the electrical method of inducing convulsions presents many justifications for its use as compared with the pharmacological methods, especially metrazol. The immediate loss of consciousness, associated with the painless electric shock and complete amnesia throughout the treatment, removes many of the subjectively disagreeable elements in the pharmacologically produced convulsion. Lack of discomfort following the treatment is another factor important for securing the muchneeded cooperation of the patient. In addition, the expense entailed by the treatment may be lessened considerably.

The present communication is based upon recent experience with the electric method at the New York State Psychiatric Institute and Hospital and upon two years of previous work with the method of one of the authors (L. K.) in Rome, Paris and London. This author was associated with Professor U. Cerletti, who originated the method in Rome, and he subsequently introduced the method in Paris and London. This first publication is intended to describe the technique as developed from some experience with the method and to present some principles which facilitate and which later may contribute to mutual understanding of results between different clinicians using the same technique.

The technique in use at the New York State Psychiatric Institute and Hospital is essentially the original technique of Cerletti and Bini¹ employed in the Rome clinic, which has proved its effectiveness and safety in now well over 10,000 convulsions in the Rome and other European clinics. The technique as now used has

been found, after thorough trial, to be simple, practical and harmless. It will, therefore, be described in detail.

APPARATUS*

The essential feature of the method involves the production of a convulsion by the application of a known potential difference for a known period of time between the frontotemporal regions. The anparatus used for this purpose comprises, therefore, two parts: (1) the system of electrodes by which the current is applied to the head, and (2) the control apparatus by which the electric characteristics of the situation are controlled. The system bearing the electrodes fulfills the important function of securing as perfect adherence as possible of the electrodes to varying shapes of individual heads. This involves flexibility in the electrode-bearing system and at the same time the possibility of producing tension within the system. Large electrodes are used in order to avoid local burning of the scalp and to afford a greater radius of current passage through the brain. The electrodes are mounted by movable articulations to a bearer system of unoxidizable metal, whose two arms act as do the two blades of a large forceps, through the spring-like action of which forcible adherence of the electrodes to the frontotemporal regions of the patient is obtained. The electrodes consist of interlacing bands of thin copper strip laced around pads of soft rubber sponge. This type of electrode, together with the pressure which can be obtained by the spring-like arms of the forceps arrangement, permits strong, firm, local pressure upon the head.

These special electrodes, which have not been used by some workers (Fleming, Golla and Grey²), are definitely preferable to simpler, smaller electrodes fastened with rubber strips around the head. In animal experiments, as well as in man, we have seen that with the special electrodes as described above, the fit can be produced at lower resistance due to the efficient adherence of the electrodes. Complications such as burning have not been known to occur. On the other hand, with smaller electrodes even with equal resistance we must increase the potential difference and the time of passage of current to produce the seizure. For these reasons

^{*}Walter E. Rahm, Jr., of the New York State Psychiatric Institute constructed the apparatus according to designs of Professor Bini's standard apparatus.

it was considered advisable to standardize this technical improvement which was achieved only after long studies.

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The electrical control apparatus involves two essential features: (1) First, there is a slow trial circuit for preliminary measurements of the resistance of the patient's head. This measurement of preliminary resistance is a highly desirable feature of the equipment since, on the basis of the measured resistance, an estimation can be made of the proper minimal voltage necessary to induce a convulsion. For the measurement of the resistance, direct (galvanic) current is preferable to exclude any sensation on the part of the patient. In this trial circuit a potentiometer is inserted which is provided with a graduated dial for the direct reading of the resistance in ohms when one milliampere of current passes through the patient's head. (2) The second circuit in the electrical control portion of the apparatus serves for the production of the shock itself. For production of the shock the writers use alternating current from electric light circuits, having a frequency of 60 evcles per second. Alternating currents of other frequencies have produced the same results. According to observations of Bini, the effects remain essentially unchanged for frequencies between 30 and 170 cycles per second. This circuit of the electric control apparatus contains a volt meter from which the observer can determine the voltage to be applied, a milliammeter by which the current involved in the shock can be determined, and finally an automatic clock interrupter which breaks the circuit at a given time, thus allowing the current to pass through the head for a certain predetermined time interval. In general, the writers have used potential differences of 70 to 100 volts for one-tenth of a second. Such characteristics in the electric circuit usually suffice for the production of a convulsive seizure.

TREATMENT PROCEDURE

The patient to be treated by the electric convulsion therapy needs no special treatment preparation. During the procedure he is placed in the supine position on the usual hospital examining table. This table must be free of moisture. The limbs and body are not held by any mechanical means. However, observers are placed along both sides of the patient to avoid possible harm to the pa-

tient such as might be associated with falling from the table during the convulsion. The handling during the actual convulsion is essentially the same as that used during the usual metrazol convulsion. To secure optimum electrical conduction, the frontotemporal regions of the patient are covered with a thin layer of electrode jelly such as is commonly used in electrocardiography or electroencephalography. The electrodes are then covered with gauze and moistened thoroughly with 20 per cent saline solution. They are applied bilaterally to the frontotemporal region slightly above and anterior to the ears. Firm pressure is obtained by tightening the forceps arrangement.

The first step, once the electrodes have been applied properly, is the measurement of the resistance. For this purpose the trial circuit as described above is utilized. This circuit is calibrated to give a reading of ohms on the potentiometer for one milliampere current. The current is gradually increased to one milliampere and the reading in ohms taken directly from the scale on the potentiometer. In the usual case the resistance measures between 200 and 600 ohms. The ohms resistance as thus determined supplies the experienced investigator with a valuable hint of the voltage necessary to use in the particular patient. As the next step the volt meter is set so as to indicate the voltage which will be applied across the electrodes. In the first attempt in patients with a low resistance (less than 300 ohms), the writers usually apply a potential difference of 70 volts. For patients with higher resistance, 80 volts are used. Once the volt meter has been set, the time meter is adjusted according to the time required. At present a constant time of one-tenth of a second is used. When the electrical characteristics of the circuit have thus been set, the circuit is closed by a small switch. While the current is passing a reading is taken from the milliammeter, which should be of a type designed especially for reading of currents of short duration. This can be accomplished by a special device which allows preliminary setting of the milliammeter needle at a figure slightly below the expected amperage. This procedure eliminates to a great extent the inertia factor and allows a more accurate reading. The same effect has been obtained

by using a ballistic milliammeter (Shepley and McGregor'). It is important to have a record of the observations of the current actu-

ally passing for use in succeding treatments.

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The writers are fully aware that the above-cited electrical measurements as used in such a system have but a relative value. This is true in particular of the preliminary measurements of the resistance. Indeed, this preliminary step was abolished by Sogliani.⁵ It was clear from the beginning that Ohm's law could not be applied to these records. The apparent resistance in the tissue drops considerably during the passage of current. A marked drop in the measured resistance was detected for some time following each application. The usefulness, however, of the preliminary measure of resistance is that it renders at least an approximate idea of the voltage to be applied. Furthermore, it serves to control the intactness of the circuit. Improperly applied electrodes may increase the resistance markedly. Resistances of 1,000 ohms or more make one suspicious of poor contact; extremely low resistances are generally suggestive of a short circuit.

On closing of the stimulating circuit, one of two responses occurs: (a) a generalized convulsion (grand mal), or (b) a state of unconsciousness of shorter or longer duration without the motor manifestations of a generalized convulsion (petit mal, or absence). Bini calls these two responses "complete shock" and "incomplete shock". With proper procedure, one never experiences a complete failure of response with extremely disagreeable sensations on the part of the patient as we see occur with the metrazol treatment. When the circuit is closed, the patient immediately loses consciousness. Usually a brusque movement of flexion throughout the whole body occurs. It is difficult to judge what is the basis of this short general contraction. It would not seen unreasonable to attribute it to a direct stimulation of the motor areas in the precentral con-This initial period of unconsciousness may last for a varying period of time. If the electric shock given was insufficient to produce a convulsion, the patient may then simply wake from the unconscious state. If a generalized convulsion occurs it usually follows a latency period of one to 30 seconds, rarely more. During this latency period the patient is unconscious. During longer latency periods the patient may be generally relaxed, but he sometimes shows slow automatic movements and strange attitudes. The generalized convulsion itself corresponds essentially to the usual generalized epileptic seizure. There is an initial tonic phase followed by clonic movements. Appea develops, but the patient regains breathing at the end of the clonic phase as usually occurs in an epileptic patient. The question whether the electrically induced convulsion corresponds more closely to the metrazol seizure or to the seizure of the epileptic patient cannot be answered definitely at this time. It is the writers' impression that the seizure induced by electricity is generally less violent than many of the metrazol seizures; however, the ordinary seizures of epileptic patients may vary so widely in their manifestations that the diverse symptomatology of the electrically induced convulsions would not seem to justify an attempt to set up specific signs to differentiate them from the "genuine" epileptic seizures. Convulsive seizures are a reaction of the brain to stimuli. Marked difference may occur in this reaction between various persons, but the reaction in a given person does not depend on the kind of stimulus. Studies regarding these points are under way at present and will be the subject of later communications.

Absence (petit mal) is the response of the patient if the electric stimulus used to provoke a seizure was below the convulsion threshold. The length of this absence gives us a hint of the degree by which the shocking circuit characteristics used were below those of the convulsion threshold. Somewhat arbitrarily, therefore, and only for practical purposes, the writers distinguish four degrees of petit mal (incomplete shock) as follows:

First degree—Absence + (up to five seconds)

Second degree—Absence ++ (five to 10 seconds)

Third degree—Absence +++ (10 to 30 seconds)

Fourth degree—Absence ++++ (more than 40 seconds)

It is often difficult to distinguish the length of the absence and even more difficult to distinguish the actual length of a grand mal seizure. The best way perhaps is to time from the apnea. An interesting fact was noted in the present investigation, viz. in most seizures the apnea remains of the same duration whether the patient develops the seizure immediately or following a latency period. For example, a patient may have a convulsive seizure with

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eth an apnea of 60 seconds at one treatment. In the next treatment the same patient may show 25 seconds of latency period with apnea, and during the seizure a further apnea of only 35 seconds, so that the total period of apnea is again 60 seconds. Further studies are being conducted to determine the significance of this observation.

For the first treatment in a patient whose convulsion threshold is unknown, in patients of low measured resistance, the writers use 70 volts. Where the resistance is higher, 80 volts are used. This usually induces no generalized seizure. Following this first shock occurs a short refractory period during which the patient does not respond to a new electric stimulus. Therefore, three to five minutes are permitted to elapse before applying the second shock. The procedure is then repeated with an increase of voltage—10 volts after long absence (third to fourth degree), 15 volts after a shorter absence (second degree), 20 volts after an absence of the first degree. There is no medical contraindication rendering it inadvisable to make a third attempt, even if the second attempt results in failure to obtain a generalized seizure. In light of the fact that the patient experiences no unpleasant recollections of the former attempts, there is no objection on his part against further procedures. In addition, neither the recovery nor the apnea of later attempts will be prolonged, even after several petit mal attacks have preceded. Finally, there is no cumulative effect such as may be present with drug therapy.

The electric method, as contrasted with pharmacological methods, never obtains a "failure" after the stimulation. In all cases an "epileptic" response occurs, whether it be of the absence or petit mal type, or of the generalized seizure type. The least effect obtained is an absence of shorter or longer duration. This petit mal type of response is an epileptoid response which is unknown after injections of metrazol where either the grand mal seizure or the failure of seizure are the alternatives.

As mentioned above, the resistance should be measured before each new attempt since it drops after each passage of current. Thus, the voltage which may be applied in the succeeding applications will be estimated not only in terms of the length of absence associated with the former attempt but also on the basis of the measured resistance. Since, however, the convulsion threshold is

usually somewhat increased in the second attempt, we would not obtain a seizure by the same current. The lower resistance may be considered as compensated by the increased threshold and may be neglected if the drop of resistance, as compared with measured resistance of the previous application, does not surpass 25 per cent. The minimum amperage necessary for obtaining a seizure is usually about 375 milliamperes and the highest current strength so far found to be necessary has been 1,200 milliamperes. The highest voltage used to date was 120 volts. (The average voltage sufficient for convulsion is between 80 and 100 volts.) The time for passage of current has now been set as constant at one-tenth of a second. Shorter times, e. g. one-twentieth of a second, proved insufficient in many cases. It has generally seemed unnecessary to allow the current to pass for a greater time than one-tenth of a second.

The usual patient, following treatment in which either a petit mal or a generalized type of response is obtained, rapidly assumes a quiet attitude. Occasionally, for a few minutes following generalized seizure, some patients may show marked restlessness or agitation which, however, passes off rapidly, leaving the patient relaxed and apparently asleep. Questioning of all patients, regardless whether the petit mal or the generalized type of seizure response was obtained, revealed virtually complete retrograde amnesia for the procedure. No patients maintained any unfavorable attitudes toward subsequent procedures of the same type. This is considered an inestimable advantage in this method.

At the present stage of the therapy at the New York State Psychiatric Institute and Hospital, the method is applied essentially as metrazol has been tried. Treatments are given every second day or about three times per week and are continued until the desired clinical status is obtained. The total number of seizures usually given up to the present is between five and 10. The writers will not attempt to answer here the question as to what number of seizures is best, since they do not feel that this method is going to add essentially new checks to this point. It may be stated, however, that owing to the minimal disturbance in the patient's subjective feelings, the electrical method seems particularly satisfactory for more energetic treatments with applications of short intervals.

RESULTS

It would be too early to report definitely on the results in the approximately 15 cases treated to date at the Psychiatric Institute.* The patients used have been essentially schizophrenics or natients with depression, preferably of the agitated depression type. Results, however, from other clinics have been encouraging. One of the writers (L. K.) presented as preliminary figures results on more than 100 patients treated with about 1,000 convulsions at Cerletti's clinic in Rome. At that time recovery was obtained in about 80 per cent of those cases where the duration of the psychosis had been shorter than six months. The best recoveries were found in cases of manic-depressive psychosis. would seem to be suggested also by preliminary observations at the Psychiatric Institute. When to this are added the recoveries in cases of schizophrenia of greater duration as found in the Rome clinic, it may be asserted that the results obtained with this method correspond favorably to those made with the other methods of shock therapy. This is what might be expected. We do not see in the electric convulsion therapy a radically new type of treatment but, rather, technical progress in the method of producing the convulsion. It seems preferable to most other specific methods of therapy because it overcomes most of the objections made against those other methods. Further observation with long series of cases and followup studies will serve undoubtedly to compare the results of this method with the other forms of shock therapy.

DISCUSSION

To date in the hands of various investigators, the electrical shock method seems relatively harmless. In over 10,000 convulsions known to the writers, no serious results have occurred. It was not to be expected that the passage of the electricity through the brain in this way would of itself produce serious damage. In lower animals it was found that electrical death occurs only when the current passes through the heart. This was shown by Bini³ who observed that even with considerably greater intensities of current and voltage than are necessary for our purposes, fibrillation or other cardiac phenomena did not occur in the animals. In the re-

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^{*}Up to the end of September, 1940 we have treated 40 patients and have given a total of 600 applications of this treatment at the Psychiatric Institute. (Author's note.)

ported literature fractures or dislocations have been rare. So far only two fractures have been mentioned, by Fleming.2 It is not clear as yet whether fractures of the vertebrae, as reported by Polatin, Friedman, Harris and Horwitz for metrazol therapy, oc. cur in electric shock therapy. It is of interest that of the first 10 cases treated at the New York State Psychiatric Institute with this method no fractures of the vertebrae have as yet been found despite routine roentgenographic examination of the vertebrae as carried out with the metrazol patients. If such is the case, the reason for the smaller frequency of fractures in the electric shock therapy, as compared with metrazol therapy, is not clear. The lower frequency may perhaps be explained by the fact that in some treatments the convulsion occurs when the patient is not in a state of rigid anxiety and expectation as often may be the case with metrazol, but when he is in a state of relative relaxation, during the latency period.

Mental sequelae as occasionally seen in metrazol-treated patients have not been observed to date. In this regard, it is noted that earlier anatomical investigations by Cerletti and Bini¹ revealed lesions which were considered to be irreversible in animals treated by pharmacological shock (insulin as well as cardiazol), while only reversible changes (such as some of the nerve cell changes of Nissl) were found in animals formerly studied with the electric shock. In light of the fact that convulsion therapy as a whole is still under serious discussion, it would seem of considerable advantage to possess a technical procedure which, with apparently less risks, allows us to continue the promising attempts with this method of shock treatment in mental disorders.

As stated above, there are several advantages in the use of the electric convulsion method as contrasted with the pharmacological methods. In the first place, the stimulus situation associated with the shock can be quantitatively controlled. Perhaps the most important advantage in this method, however, is the lack of any discomfort for the patient associated with the method. A constant amnesia is present for the whole procedure in cases with generalized seizures as well as those of absence (petit mal). The patient does not usually remember even the kind of treatment he has received, therefore he develops no antagonisms or uneasiness for fu-

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ture treatments. It is hardly necessary to say more concerning this great advantage and what it means for anyone who has had experience with metrazol therapy.

To date no patients have been found completely refractory to the provocation of seizures. Cases with high convulsion thresholds where initial attempts fail to obtain a generalized seizure are especially impressive, because lack of muscular discharge is not related to malaise of any sort, for no drug of potential toxicity has been injected into the organism. Actually, it is exceedingly rare not to be able to obtain a convulsion at the first session because the procedure may be repeated shortly thereafter without fear of accumulative effect.

The electric shock method is not applicable only to hospitalized patients. The treated patients are not undergoing any toxic effects of a drug, and applications are easily given to outpatients. Metrazol treatment has been tried in such patients, but the writers did not feel it wise to use it in this manner: Undesired sequelae with possibly after-seizures might make a general application seem inadvisable. With the electric convulsion method, we are in a position to completely exclude these disadvantages, hence no contraindications are evident in treatment of this type in outpatients. To be sure, such patients may feel somewhat sleepy for a short time following a treatment, but they are always comfortable and quiet. Thus, there are no objections against sending them home an hour or so after the treatment and the patient has no objections against returning for the succeeding treatments.

Finally, one point must be stressed, not the least to be considered where large groups of patients are to be treated. Shock therapy has become a relatively routine treatment in many institutions and is given to large groups of patients. The average community cost for such treatment may be great. The electric shock method of therapy seems to offer great advantages in this regard also. No drugs need be purchased. This may result in a considerable saving. One apparatus, which can be purchased at a rather moderate cost, suffices to treat a large number of patients. The single treatment costs little as the only operating expense, the cost of the current, is slight.

Since the electric shock method allows us to produce seizures under fairly controllable and known physical situations, it promises to be of considerable importance for experimental purposes. The relation of generalized seizures or of absences to the beneficial effects obtained is an interesting problem. Various chemical problems such as blood sugar findings and other changes normally associated with seizures may be of great interest. The method, therefore, seems to possess great advantages both for therapy and for research. On the therapeutic side it is of considerable advantage to the individual patient, as contrasted with the usual pharmacological shock methods. To the community it may result in considerable savings. Its value for research in various bodily mechanisms is as yet far from any possible evaluation.

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THE MECHANISMS OF WIT AND HUMOR IN NORMAL AND PSYCHOPATHIC STATES*

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BY A. A. BRILL, PH.B., M. D.

In the introduction to his interesting and profound work on wit,¹ Professor Freud reviews briefly the theories held by those authors who had occupied themselves with the psychological aspects of the subject, justly concluding that the important rôle played by wit in our psychic life has not been properly recognized. That wit is a subject worthy of a thorough inquiry, he feels he can not doubt: as he expresses it, there is an intimate connection between all psychic processes, and wit certainly offers society a "peculiar, overwhelmingly fascinating charm." "A new joke operates almost as an event of universal interest."

As is known to students of psychoanalysis, Freud became interested in the mechanisms of wit while absorbed in his study of dreams. For he found that the technique of wit made use of the same expressions as that of the dream, namely condensation with or without substitutive formation, displacement, representation through absurdity or through opposites, indirect expression and other mechanisms. He noticed also that the common mistakes in talking, writing and faulty acts use again the same techniques,3 often with witty effect. All these works appeared within a period of a few years† and formed the bridge between the neurotic and the so-called normal insofar as these expressions (the dream, the slip and the joke) are all products of the foreconscious or unconscious state, and just like the hysterical symptom, the obsession and the delusion, make use of the same distortions in conscious expression. Let us take an ordinary slip of the tongue for illustration:

While prescribing for a patient, the writer said to her, "I'm giving you 20 pills," to which the patient interjected, "Please don't give me big bills. I cannot swallow them." She undoubtedly wished to say "pills", but the p was unconsciously changed to b in order to express a thought which the patient was too sensitive to tell.

^{*}Revised copy of a paper read before the Vidonian Club, January 26, 1929.

[†]The Interpretation of Dreams in 1900; The Psychopathology of Everyday Life in 1901; and the book on Wit in 1905.

The writer then casually remarked that if she thought his fee was too high for her, he would be pleased to reduce it. She replied that she was glad that the subject had been brought up, that she really could not afford to pay what had been charged for the first visit. This slight error not only told eloquently what the patient tried to conceal, but also showed a comic effect.

The importance of wit as a psychic mechanism in everyday life will be readily admitted by any casual observer. It serves as a universal outlet in all countries of European culture, and with presentday communication facilities a good joke quickly becomes an international event. A few years ago when our girl swimmers came into prominence, the writer heard the following witticism: An American gentleman became enamored of a famous woman swimmer popular at Ostend, Vichy and other European resorts. He repeatedly asked her how and where she acquired her remarkable swimming speed and skill. She continued to evade the answer until he proposed marriage, when she told him dramatically that many years ago she had been a street-walker in Venice. The writer was told this joke five times by persons who had heard it in different localities on this continent, from the Atlantic to the Pacific; that summer, it seemed as popular in Europe. If one reflects upon the number of "funny sheets" and humorous periodicals read by young and old, or upon the use made of wit in public and private entertainments, he must conclude that this is a social factor eminently worthy of examination.

Moreover, through its mechanisms wit shows the direct transition from such abnormal phenomena as obsessions and delusions to normal expressions of everyday life; although, superficially viewed, there seems to be no relation between wit and psychopathology, (for the latter treats of pain, and wit of pleasure), they are nevertheless often closely connected and supplement each other. As a matter of fact, wit owes its origin and development to the inexorable vicissitudes of modern life.

To illustrate some of the deeper mechanisms of wit, let us consider one of the stories told by our most illustrious raconteur, Abraham Lincoln. A negro barber in Illinois stepped out of his shop one night to join a crowd gazing at the luminous glow of the planet Jupiter. "Sho," said the barber, "Ah see dat stah befoh. Ah seen

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him way down in Georgy." Lincoln's explanation was, "He told the truth, but thought he was lying." This may be true, but, even so, what was the state of mind of the negro: how was he able to produced so complicated a witticism? Besides, how did this humble individual's behavior differ from that of Socrates, who, when asked by Crito just before he drank the hemlock in what manner he would be buried, answered, "As you please; if you can hold on to me, and I do not escape you." These questions are not as simple as they appear; the attempt to explain them leads into the deepest recesses of the psyche.

However, not many psychopathologists have occupied themselves with the subject of wit, and few of Freud's disciples followed the master in this interest. Except for a paper of the present writer, no Freudian in this country has written anything on wit. But following Freud's paper, "On Humor," which appeared in 1928, two interesting papers were published on the subject. Abroad, Theodore Reik not only applied the technique of wit in his analytic work, but also wrote extensively on the subject. Nor did the witmakers contribute much to the psychology of wit. They are not usually the ones who enjoy it, nor are they particularly interested in the problem.

A jest's prosperity lies in the ear Of him that hears it, never in the tongue Of him that makes it.

said the bard of Avon. Wit comes as a sort of inspiration. Those who perceive it may be entirely unaware of its source. The professional wit-purveyors catering to the public are even less likely to occupy themselves with it scientifically. On the other hand, the scientist is usually not prone to sportiveness. He has frequently no time or need for wit, as the struggle for existence seems to absorb all his time and efforts.

Among primitive peoples, seldom are indications found of a sense of humor. Collections can be bought containing Hebrew, Irish, German or Yankee jokes, but the writer has never seen such a collection of American Indian jokes. To be sure, the Indians and other primitives do play occasionally, but even their dances are solemn and represent things of a more or less utilitarian or needful nature; they are not the expression of the joie de vivre as seen

in our salons and ballrooms. Thus Koch-Grünberg,⁸ describing the phallus dance of the South American Indian, states that this represents copulation and fecundation: "despite the grotesque movements, the dance is perceived as something very serious by both the dancers and also the onlookers." "Thus, we see," he concludes, "that these dances are instigated by the same basic motives which underlie almost all dances of a religious character the world over, namely, driving out demons and producing fructification."

Furthermore, playing with words or ideas in the form of joking is rarely seen even among semienlightened people of historical times. There are no records, for example, of jokes left by Genghis Khan or Tamerlane. Of the latter, Lamb, his most recent biographer, states: "He had no love for foolery and in all his life he never appreciated a jest." Their victories were celebrated in a frank, sadistic and often obscene manner. The prettiest aristocratic captive maidens, never seen before outside the harem, were stripped naked and forced to sing, dance, and fill the goblets of the warriors, who then violated them. It was a relentless and brutal life, without repression, hence without need for such mental gymnastics as wit. Wit is thus a product of civilization. As Bergson puts it, "It begins, in fact, with what might be called a growing callousness to social life."

Recently the writer asked a well-known scientist for the best joke he had ever heard, to which the latter replied: "Did you ever hear the one about the absent-minded professor who unbuttoned his waistcoat, pulled out his necktie, and urinated in his trousers?" As we all know, the absent-minded professor is used the world over as a theme for wit, and the very idea of his distraction is provocative of laughter. Thus, we are told of a young woman who, on being presented to the famous Professor Smith, said, "Oh, Professor, please do something absent-minded." What sort of persons, then, are absent-minded professors, why are they the subject of so many jokes, and most interesting of all, why did the scientist referred to above choose this particular joke?

The proverbial professor is usually of either the schizoid or the schizoid-manic type, one who cannot be bothered by the ordinary

trifles of life. It should be noted that the professor or teacher has always aroused resistances in us. Born to be free and independent, we find it hard to be taught by anyone. Strange to relate, we rarely love those who teach us. Youths are usually pleased when their teacher is ill or when school must be closed because of fire or other reasons. It is the same feeling which the boy may already have experienced when his father was sick or away from home. The teacher or professor is in our unconscious the direct representative of the father. Having consciously wished him dead in our early years, we feel differently about him when we are older, for then the force of conscience has a firmer hold upon us. Such horrible thoughts can no longer be tolerated, but that does not altogether abrogate our unconscious hostility toward the father or his substitute. It does not prevent us from making a fool of him if such an occasion presents itself.

But why did the person mentioned select just this joke as the best he had heard? It was not accidental, as we shall see. He was a man of 40 still dominated by a strong father, who persistently exerted his paternal prerogatives on him. Considerable rivalry continued to exist between father and son for the mother's favors. The father was markedly aggressive, while the son was more or less passive, dominated by a "small penis complex." In the joke the necktie symbolized his greatest desideratum, the long penis. Depreciation of the father, as well as identification with him, was expressed by having him act like a child (urinate in his clothes), a habit for which he had often been punished by his father—all these

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For many years, the writer had been accustomed to asking his patients at the beginning of the analysis for the best jokes they had ever heard. The joke given by the patient as his best invariably referred to his unconscious and conscious trends. Thus, an elderly patient suffering from a feeling of impotence told of an impotent farmer who, after taking a few doses of medicine prescribed by the local doctor, attained a powerful erection, a veritable priapism, which continued for hours without letting up. As the doctor was away, the farmer went into the only village drugstore, kept by two maiden ladies. His modesty restrained him from talking to the

younger sister, but he sheepishly addressed himself to the elder. After stammering out his story, he asked, "Can you give me something for it?" "Give you something for it?", she exclaimed, "I'll give you the drugstore and everything else I have."

A patient whose husband was sexually weak gave as her best joke the story of a man who was in the habit of shaving every morning, exclaiming afterward, "Now I feel ten years younger," to which his wife finally retorted one day, "Why don't you shave before retiring?"

An elderly man of 76, who had a right hemiplegia resulting from an old cerebral hemorrhage, told a joke about stagecoach traveling in the Rocky Mountains during his early youth. "One day," he said, "the coach was filled to capacity and a young lady came running in search of a seat. The old driver felt sympathetic toward this girl, and, as there was no other way of crowding her into the coach, he volunteered to let her sit on his lap. Seeing that she hesitated, he said, "Young lady, I am an old man. I have grandchildren as old as you, so you need not mind sitting on my lap." As there was no alternative, she accepted his offer. After driving up and down the hills for some time, the aged driver stopped the coach and said to the young lady, "I'm sorry, you'll have to get off. I'm not as old as I thought."

The wish tendency in this and in the other jokes is obvious. Frequently, after the first joke is given the patient suddenly thinks of another dealing with the same complex, though more disguised and sometimes divested of its frank sexual content. For example, a young man suffering from a masturbation guilt complex gave as his first joke the story of an English army officer stationed in an isolated part of the Far East, where there were no white women, the native women being strictly taboo to officers under pain of death. "Lieutenant Archie had to masturbate, and this naturally impaired his brain. His struggle against it was in vain, and the longer he continued the more his mind became affected. Finally his memory became worse and worse, until he could not remember anything. He even forgot to masturbate, and so cured himself."

A masochistic patient, a timid soul who blushed in the presence of women, thought that the best joke he had ever heard was the one r.

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about a man who suddenly found a pretty girl tied to a tree in the heart of the woods. The girl told him that a man had kidnapped her, tied her to a tree, and assaulted her. "Well, did you scream?" he asked. "Sure, I did." "Did you scream very loud?" "As loud as I could." "And no one heard you?" "No." "Well, in that case, I'll take a turn at you myself." This story becomes clear when it is recalled that masochism and sadism go hand in hand.

These examples could be multiplied indefinitely. All these jokes dealt with some form of sexuality, and except for their frankness differed little from jokes which one frequently reads in our comic periodicals and hears at private gatherings or on the stage. In every vaudeville house and in many musical comedies, homosexual jokes are related in homosexual code so that only the initiated can understand them. However, smutty witticisms heard at social gatherings generally deal with adult or genital sexuality, while those heard in the writer's office and on the stage refer to the partial impulses and components of sex—that is, to infantile sexuality.

That most of the witticisms given by neurotics refer to pregenital sexuality is a manifestation of the fact that the neurotic struggles with a fragment of his infantile sexual preoccupations. The jokes related by transference neurotics were invariably of this type. They always dealt with oral, urethral and anal-sadistic situations, while jokes dealing with object libido were invariably given by those who had attained genitality and object libido, and who for some reason or other—physical or psychic traumas—later became more or less inhibited in their sexual functions.

Jokes made by children invariably deal with pregenital sexuality, and the older the child the more distorted is the witty expression. Here one can observe a direct relation between the dream and wit. When a very young child bursts out laughing, it is usually done as an imitation; it is not a spontaneous outlet. Later on, laughter becomes associated with pleasurable feelings, but hysterics and schizophrenics sometimes cry instead, or do both simultaneously. At the age of four or five, children show a definite pleasure in wit although it is often quite incomprehensible to the adults who hear it. Thus, a small boy of about four heard his older brother spell and pronounce the word Mississippi, and became very much amused thereby. He was particularly fascinated by the sound of

the last syllable, "pi," and kept repeating it in the presence of his parents with a sort of noisy bravado until it became annoying to everyone. He was at the age where the infantile excretory pleasures are being repressed, all words referring to them being tabooed. The sound of "pi" recalled to him the tabooed word "peepee" which he was then trying hard to hold back. Not realizing that his brother was using the sound in an entirely different sense, he was emboldened to reopen a repressed pleasure in the form of sound association.

At this age and even later, one can often observe the force of repression in the civilized child through such simple mechanisms as that mentioned. Any tabooed word or expression may by mere sound association provoke mirth and laughter, sometimes baffling the grownups present. Often the true meaning of such a witticism is subtly concealed, as will be seen by the following example:

At the age of four and one-half, a little girl said laughingly to her father, "Here is a funny joke: why don't you plant meat and let it grow?" "Why is it funny?", asked the father. "Because meat does not grow," was the little one's answer. The little girl seemed much amused at this joke, which seemed childish and incomprehensible to the father, but a little reflection revealed its underlying logic. The girl was the daughter of so-called enlightened parents, who, when she was about four, concluded that their former methods of hiding the sexual from their children were wrong, and decided to remedy the situation. The two children were then allowed to see the parents undressed. As an object lesson in childbirth, the mother showed the little girl how to plant a nasturtium seed in a flower pot in order to watch it grow and develop. child asked many questions about her own development and was told that she grew in her mother from a seed implanted by her father. For some time she showed an interest in the penis; she saw her brother's genitals and became curious about them. She wanted to know why she did not have "a flesh tassel" like John. Her mother explained to her the difference between the sexes and the function of the respective genitals, to all of which the little girl reacted facetiously. Her mother thought that she was paying no attention to her lesson on sex, and wondered about the value of sex his

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enlightenment at so early an age. However, the joke invented by the little girl showed plainly that she not only understood everything, but was deeply affected by the whole problem. What she gathered from all she saw and heard during three or four months was that her father was the possessor of the seed and that, once it was implanted into her mother through the penis, it grew like the nasturtium. However, as she was not yet able to resign herself to the idea of lacking something which John had (penis envy), the growth of the nasturtium offered small comfort to her. As the father was the omnipotent being who could produce children through his seed, she wondered whether he could not "plant meat in her and make it grow," or whether he could not give her a penis. Her answer, "because meat doesn't grow," was both an attempt at self-resignation and an expression of contempt for the father. Her question seemed merely a clumsy effort at wit-making, whereas actually it expressed a strong sentiment.

In both these childish expressions of wit, one can discern a direct effort to obtain pleasure from forbidden sources. In the boy the mechanism was quite transparent, while in the older girl it already showed considerable distortion, her facetiousness and foolish behavior being simply a mask to conceal her deep feeling about this problem. Children show this mode of behavior also at a much later age. The writer has observed children of seven, eight, nine and 10 years acting foolishly and cutting all sorts of capers when they could not understand the lessons imparted to them. They act in this manner to conceal their embarrassment, as well as to obtain some pleasure from a painful situation. Similar mechanisms are found in the Ganser and buffoonery syndromes of certain patients.¹⁰

In attempting to fix the beginning of infantile repression, the writer has watched the dreams of his own children and those of friends' children. Children begin to dream early in life. At two years, one can already discern wish tendency dreams. Below the age of five, the dreams of children usually reveal a frank wish realization. At about five the dreams become more and more distorted, and at the same time the budding sense of humor becomes apparent. The same forces which are at the basis of the

unconscious dream wishes are responsible for many fantasies and for the conscious process of wit-making. Wit affords the only way of obtaining pleasure from forbidden sources by distorting words and ideas.

A young lady dreamed that a certain man gave her a peculiar-looking fountain pen, which he deliberately thrust into her left nostril so that it hurt her and interfered with her breathing. Her father was most angry at her. Here the wish for coitus with a particular man, a writer, is obvious, and is expressed by the familiar mechanism of displacement from below to above. "Left" in dreams means something wrong, and the angry father is her superego or conscience. The underlying wish is indirectly expressed in order to protect the innocent girl from being shocked. The same mechanism is seen in fantasies. Thus, a long sword dangling after him, vividly felt by a man for many years whenever he walked the streets, was an unconscious wish compensation for his small penis complex. The tendency of wit is the same as in all these other psychic processes.

An elderly gentleman, former editor of a popular magazine, answered the question as to the best joke he had ever heard with the following story: A man was charged with having received stolen goods, despite the fact that when his premises were searched no trace of them was found. The police did find, however, a set of burglars' tools in his cellar. It was a case of circumstantial evidence, furnishing sufficient proof for the judge to sentence him to a three months imprisonment. When the sentence was pronounced, the prisoner unexpectedly asked the court whether it would not be possible to give him five months instead of three. The judge at first thought the prisoner was joking, but the prisoner explained that at the expiration of three months it would be the middle of January, when it would be hard to obtain work; if he remained in prison until the end of March, it would be easier for him in every way. "But," said the judge, "I cannot impose a longer term because I have already given you the maximum sentence under the statute." The prisoner, however, persisted in his request; to make it easier for the judge, he thought of pleading guilty to an additional charge, such as adultery. The judge became interested and asked, "Well, have you committed adultery?" "No, your Honor," answered the prisoner, "but I have the tools for it."—The patient added that this joke was the best satire on circumstantial evidence he had ever heard. One notes that he was a man of 74 years, who suffered from anxiety following an unsuccessful love affair with a young woman. The same indirect and symbolic expression is seen here as in the dream and in the fantasy mentioned above.

In fact, old gentlemen of the cultured stratum of society frequently show a tendency to obscene joking, simply because their sex life is often more or less passé either for somatic or psychic reasons. Moreover, because of their standing in their community it is often difficult for them to obtain sexual gratification. If a young man shows the same tendency, one may suspect that he is suffering from relative or absolute impotence.

However, it is not sex alone that furnishes the *vis comica* of our social life. To be sure, sex plays an enormous part in the unconscious and conscious life of cultured people by virtue of the marked repression and control to which it has to be subjected. Wit, too, is nothing but a by-path for repressed tendencies imposed upon us by society, be they sexual or nonsexual. For wit releases dammed-up feelings, it reduces high tension which is painful, and helps to keep the organism at a constant low level in the service of the pleasure principle. It is not, however, in the service of sex alone that wit plays a part. It is used to express hostile and other tendencies for which direct expression is either restricted or entirely closed.

The following witticisms may serve as illustrations:

Four gentlemen became acquainted in the club car of the Twentieth Century Limited. After talking for some time, one of them said, "Gentlemen, it is only fair that I introduce myself. My name is Collins." "My name is Cochrane," said the second, and the third, "Mine is Cabot." The fourth added, "And my name is Cohen, too." There is no sex in this witticism; it merely serves as an expression of the hardships experienced by Jews who strive to mitigate them by changing their ostensibly Hebraic names to Anglo-Saxon ones. In spite of their efforts to disguise themselves, they are still recognized. "My name is Cohen, too," simply states that there is no way of disguising oneself.

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nake addiand The following story represents another phase of the same problem. Hyman Levy owes four years' dues to his synagogue and is constantly dunned for it. The president of the synagogue finally sends the sexton with the ultimatum that unless the account is forthwith settled, he will be expelled from the congregation. Levy begs for two weeks of grace, but when the sexton calls at the expiration of the two weeks, Levy arrogantly informs him that he is no longer a Jew, that he was baptized a few days before. When the sexton returns with this message to the president of the synagogue, the latter exclaims, "Well, well, that's a typical Jewish trick!"

This joke again expresses the futility of the Jewish problem. Even changing his religion does not save the Jew. No matter what he does, even his baptism is considered "a Jewish trick."

Speaking of Jewish wit, Freud states: "Incidentally, I do not know whether one often finds a people that makes merry so unreservedly over its own shortcomings." Here again it is a question of the roundabout release of accumulated repressed tension. As a result of the most rigorous hardships and barbarous oppressions for about 2,000 years, the Jew was obliged to find some psychic way of attenuating his suffering. His sense of humor, which is in itself a sort of healing process, serves this purpose. As a result of Nazi persecution of the Jews in Central Europe, many witticisms are now heard of the Galgenhumor or grim humor type. A typical example is the following:

Two Jews who meet in a Vienna suburb exchange news of their harrassed and scattered friends and relatives. "Did you hear that J. committed suicide?" says the first. "Well, can you blame him for wishing to improve his condition?" is the ready answer. The formation and retention of the psychic inhibition demanded by this sad situation would require considerable effort or psychic expenditure, but wit saves this psychic expenditure by removing the inhibition through pleasure.

Let us now return to Abraham Lincoln's barber. The darky sees a crowd of whites gazing at the planet Jupiter. Not as yet having attained the culture of the whites, he cannot understand why they show so much interest in a star. He is even more puzzled when he hears that this is a special kind of star, the planet Jupiter, concerning which he knows nothing. He could have acknowledged his ignorance and asked for an explanation, but that would have been difficult even for a cultured white man. Instead of acknowledging ignorance, he showed his superiority by exclaiming "Sho, Ah seen dat stah befoh. Ah seen him way down in Georgy." Lincoln was perhaps not right in his conclusion that the darky told the truth when he knew he was lying. After all, he had seen many kinds of stars in Georgia (—how many of us can tell the difference between a star and a planet?). The basic element of the barber's feeling was inferiority. It was painful to admit that the whites saw something which he had not known, and human-like he reacted by saying "No, I am not ignorant. I am superior to these whites because I have seen it before."

This mechanism of substituting pleasure for pain forms the basis of all tendency wit, but it is particularly observed in humor. The jokes considered by this writer's patients as the best they had ever heard struck special chords in their unconscious. They fitted with their struggle and furnished them a certain amount of pleasure by making light of their difficulties. For according to Freud¹² the humoristic gain in pleasure originates from a saving in expenditure of feeling. Thus, a doctor friend aroused the feelings of the writer when the latter read in his letter that he was about to undergo an operation and that, in the event of his death, he should not forget the doctor's wife and children. As the writer read, he became more and more depressed, and felt as if he were following the doctor into his affect. But all that vanished when he read, "I am already all cut up about it." The accumulated feeling of depression changed into humorous pleasure. In terms of the ego, id, and superego, we can say that the ego strove hard to shake off the impending anxiety. If the doctor had continued his letter in the same vein, he might have become increasingly unhappy and despairing; instead of that, his ego (like that of Socrates) rejected the real situation, transforming the pain into humoristic pleasure. This mechanism signifies, then, a rejection of reality and a selfassertion of the pleasure-principle, a situation which is found so much in psychopathology.

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The joke which appeals to the patient as the best he has ever heard brings into play still another mechanism. He has either read or heard the joke cited, and unconsciously identifies himself with its hero. Consciously, however, he assumes a humoristic attitude toward the fictitious character. He behaves toward him as would a grownup toward a child. The child may be appalled by the situation, but the grownup considers it more or less insignificant and can even laugh at it.

In order to understand this, one must bear in mind that the ego and superego have the same origin, and although they can usually be differentiated, as in melancholia, they sometimes fuse. We know also that the superego is the heir of the parental forces, and frequently treats the ego as the father treated the young child. Hence, the humoristic process can be explained dynamically by the assumption "that the humoristic person withdraws the psychic accent from his ego and displaces it to his superego." The ego then appears small and unimportant to this big superego, and the latter can easily suppress whatever reactions the ego happens to feel at the time. The main thing about humor is its implication, which may be expressed thus: "Well, is this so terrible? Not at all. It is just child's play, good enough to make a joke of."

This mechanism is clearly seen in tense and terrifying situations when the organism is threatened with annihilation. The writer¹³ demonstrated such an instance in the case of T., who was charged with murder. This 28-year-old man had a long criminal record, which began at the age of 12, but hitherto he had been charged only with such crimes as burglary and petty larceny. This time he was charged with a capital crime from which there was no escape. On the many previous occasions he was able to adapt himself to the situations, but this time it was too much for the organism and he reacted with an almost total allopsychic disorientation. He showed a complete amnesia for his criminal act and merged into a Ganserlike behavior. He continually repeated that he was "a good boy," and that he was "going home to mama." It was a typical "flight into disease," a complete dissociation or tearing away from reality. But while he kept on repeating the stereotyped words mentioned above and continually made facetious remarks, his features were tensely depressive and suffused with tears. Altogether he presented a regression to the autoerotic phase of childhood as a result of an unbearable situation. The mixed feelings which one ordinarily finds in humorous situations were here shown in extreme form.

Another case in question is the following: Toral, the assassin of President Obregón of Mexico, shortly before he was to be shot drew a cartoon of an old man sitting in a barber chair entirely bald except for one white hair, but heavily bearded. The barber was shown asking: "How shall I trim your beard, sir?" And the old man replying: "Not my beard; I came to have my hair cut." Toral unconsciously recalled his early fear of hair-cutting, for which so many children show a phobia, but laugh at when they are grownups. That only one hair was to be cut was undoubtedly a wish that his execution should be painless. That he should have drawn such a cartoon at this time only shows the mastery of the superego over the ego. One could also speak here of the castration threat, which in all probability obsessed this condemned prisoner at the time. and which he strove hard to overcome through humoristic pleasure. The same mechanisms come into play in acute states of anxiety, as will be shown by the following example:

An elderly gentleman, a reserve officer, was repeatedly asked by some of this friends of the aviation corps to go into the air with them. As he was a father of children and the sole support of his family, he at first hesitated, but finally decided to keep abreast of the soaring spirit of the times. Moreover, his insurance policies said nothing about airplane flights, so he felt secure that his family would not suffer so much by his death. That he was not fully attuned to his conscious decision was shown by the fact that he forgot his traveling bag when he left for the flying field. Ordinarily of a serious, schizoid makeup, he was tacit and thoughtful throughout his ride to the flying field, whither he was accompanied by his wife and young son. His thoughts ran to the possibility of death, and during the hour of motoring he was distinctly depressed. He reflected upon death and even spoke to his wife concerning the disposition of his body. This mood continued until he reached the field, where he met his friends, two army officers, who were to fly him to Virginia. As there was fog, the pilot could not obtain his clearance papers for six hours. Meanwhile, they took some drinks which helped to dispel the depression. Finally, he donned the regulation togs; his parachute was adjusted with the instructions that in case of accident he was to jump out of the plane, count three, and pull the metal ring in front of his body. His son looked on and jokingly remarked, "Dad, you look like Lindbergh." "Oh yes," he answered, "like Lindbergh when he was called the 'flying fool'." The observer and the pilot took their places and he climbed into the machine with difficulty through the square opening, being impeded by the heavy uniform and parachute. He then made his way to the jack box, where there was an opening through which he wished to look out of the plane. But as he walked to it, the canvas gave way and he suddenly fell out of the machine. He did not know that the apparently solid floor was only a piece of canvas buttoned over the lozenge-shaped opening destined for machine-gunning and bombing. Fortunately the plane was still on the ground, and he got back into it just as it began to taxi. The shock of the fall then became conscious and the generated anxiety began to settle. He gave up the idea of going to the jack box, but listened to his heart beats. The first thought which came to him was "Doctor O. told you that your heart was normal: its rapid adjustment to the shock proves that he is right." This thought was comforting and for the moment dispelled all other thoughts. He then became angry at his friends, the flyers, for not telling him anything about the structure of the machine, for he felt that he had narrowly escaped death.

The following thoughts then coursed through his mind: "Death, where is thy sting? This darned parachute which hangs like a tail upon which I am now sitting is the only thing that can save you. 'Count three and pull the handle,' said K., the pilot, as I donned the parachute; it opens and you are saved by a piece of tail."

A jerk of the machine interrupted these thoughts and brought back the anxiety, which interrupted the following joke: A little dog sat with his tail on the car track, and when the car passed, it cut off his tail. The little animal sat looking at his mutilated tail, and another car passed and cut off his head. The moral was: "Don't lose your head over a piece of tail."

"One, two, three, pull the handle and jump." Hunde, wollt Ihr denn ewig leben?"—seemingly a passage from Schiller's Robbers ("Dogs, do wish to live forever?"), which was what the villainous son said to his old father. Another passage was recalled from the same play: "Schwimme, wer schwimmen kann, wer zu plump ist geht unter." ("Swim who can swim; whosoever is too clumsy

goes under.")

Then he began to analyze himself, saying, "You are suffering from castration fear. You are still dominated by a strong superego, your tyrannical father; you had no right to be so foolhardy, you still have some father fear." He arose and carefully went to the jack box, put his head through the opening, and looked out. The sentence, "C'est le premier vol de l'aigle" ("It is the first flight of the eagle"), which Freud quotes in his wit book and which was said with reference to Napoleon, came to him at that moment. "Yes, you are a bald eagle, bald, bald;"—which made him think of the story told about Chauncey M. Depew, who used the expression "eunuch" at a gathering. A young lady who overhead him unobserved then asked him, "What is a eunuch?" He hesitated and said "A eunuch is a bald man." "Then, you are a eunuch, Mr. Depew?" said the pretty one. "No, my dear, I am too bald." ("two-balled"), etc...

These thoughts are typical of those which continued for hours; they show a mixture of pain and pleasure, an effort on the part of the mind to divert the individual from a dangerous situation by giving him some pleasure instead. Such mechanisms form the nature of humor and usually manifest themselves in painful psychic states of long duration. During the first World War, one often heard or read of such humorous outbursts. Sir Philip Gibbs, speaking of his experiences as a war correspondent with the English Army,* gave numerous examples of this kind, which he characterized as manifestations of bravery. He relates, for example, how a soldier from a London regiment observing five dead comrades whose heads had been blown off shortly before, remarked, "Oh, I say. Those fellows have lost their heads a bit."

Elsewhere the writer¹³ has shown the part played by humoristic wit in psychotic states. A number of cases were cited in order to

^{*}Related at the City Club, New York City.

show that the so-called Witzelsucht was not a special phenomenon characteristic of brain tumors, as is commonly believed, that some persons having brain tumor react with manic-like euphoric states. and that the mechanism is nothing but an unconscious reaction of the individual to a mental disintegration, of which he is unconsciously aware. It was pointed out that the so-called Galgenhumor. the chronic alcoholic pranks, and the manifestations of delirium tremens, all show identical mechanisms. The same can be said of the impulsive laughter of hysterics and schizophrenics, also of the euphoric states often observed in chronic physical diseases, such as pernicious anemia, senile dementia, and even paresis. All these phenomena are unconscious reactions to painful situations from which the individual must escape. When the shock is sudden and deep, as in the case of severe accidents, the manifestation of this mechanism is impossible. The individual then shuts himself off from all reality, he becomes unconscious, he faints. When the shock is not so vehement, when consciousness is not suspended. there is a chance to bind the anxiety, and the humoristic mechanism then comes into play. This is the case especially in persons of the schizoid-manic type. In all such cases, we discern the ingenious and effective mechanism of substituting pleasure for pain. In the so-called normal states this appears quite clear, whereas in the psychotic it is more or less distorted. When we read Phaedon, which treats of the conversations between Socrates and his friends before he drank the hemlock, we are sympathetically carried away by the sad fate which is to overcome this great personage. But when in answer to Crito's question concerning the manner in which he would be buried, he calmly answers, "As you please; if you can hold me, and I do not escape you," we have to smile. For the answer plainly shows that Socrates belittled this terrible situation and even endeavored to get some fun out of it. The same mechanism exists in the following: Hearing the doctors express misgivings as to their fees, Oscar Wilde, dying, said: "It would appear that I am dying beyond my means."

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THIRTY YEARS OF ALCOHOLIC MENTAL DISEASE IN NEW YORK STATE

BY HORATIO M. POLLOCK, PH.D.

The bureau of statistics of the State Hospital Commission and of its successor the State Department of Mental Hygiene has systematically compiled data concerning alcoholic mental disease since October 1, 1908. The civil State hospitals have sent to the statistical bureau at the end of each fiscal year a statistical schedule card for each first admission with alcoholic mental disease; also a card for each discharge, readmission or death of a patient with this class of disorder. The schedules have been uniform for all hospitals. The hospital physicians in making diagnoses and in supplying other data called for by the schedules have been guided by a statistical manual which was carefully prepared by a committee composed of representatives of the State hospitals and of the statistical bureau. With respect to alcoholic mental disease, the classification set forth in the manual has remained essentially the same during the 30 fiscal years from 1909 to 1938, inclusive, which are covered by this study.

The purpose of the study is to give a statistical review of alcoholic mental disease in the State as shown by the cases admitted and treated in civil State hospitals connected with the Department of Mental Hygiene. Naturally, it is hoped that the facts set forth will suggest ways for prevention of this form of mental disorder. The data presented do not include all the cases of alcoholic mental disease which occurred in the State during the period covered. The statistical bureau has no record of the patients who are treated in their own homes, or of those who receive temporary treatment in general hospitals, or of voluntary cases in licensed institutions. It is believed, however, that the cases of alcoholic mental disease treated by the civil State hospitals constitute by far the larger part of those occurring in the State.

The primary cause of alcoholic mental disease is overindulgence in alcoholic beverages for a period of years. A few drinkers break down early from the effects of excessive drinking, while others develop sufficient resistance to withstand the effects of overindulgence for a score of years or more.

It is sometimes claimed that the person who develops alcoholic

mental disease is an abnormal individual who acquires the drink habit because of his abnormality, or perhaps because of mental conflicts from which he seeks relief. There can be no doubt that certain cases of alcoholic mental disease can be accounted for in this manner, but comprehensive statistical studies in this State and elsewhere tend to indicate that the great majority of persons who develop alcoholic mental disease are average citizens who show no marked abnormality prior to the formation of the alcohol habit.

TABLE 1. FIRST ADMISSIONS WITH ALCOHOLIC MENTAL DISEASE, 1909-1938

Year		Number	-	20.00	ent of all			r per 100 d populati	
	M.	F.	T.	M.	F.	T.	M.	F.	T.
1909	433	128	561	15.6	5.8	10.8	9.7	2.9	6.3
1910	452	131	583	15.3	5.0	10.5	9.9	2.9	6.4
1911	444	147	591	14.7	5.5	10.4	9.6	3.2	6.4
1912	434	131	565	14.4	4.8	9.8	9.3	2.8	6.1
1913	438	134	572	13.7	4.7	9.4	9.2	2.8	6.1
1914	348	116	464	10.4	3.6	7.4	7.3	2.4	4.9
1915	255	90	345	7.8	3.1	5.6	5.3	1.9	3.6
1916	*215	*82	*297	8.4	3.5	6.1	†5.9	†2.2	†4.1
1917	437	157	594	12.1	4.8	8.6	8.8	3.2	6.0
1918	257	97	354	7.3	3.0	5.2	5.1	1.9	3.5
1919	204	65	269	5.8	2.0	4.0	4.0	1.3	2.6
1920	90	32	122	2.7	1.0	1.9	1.7	0.6	1.2
1921	167	26	193	4.6	0.8	2.8	3.2	0.5	1.8
1922	194	32	226	5.1	1.0	3.2	3.6	0.6	2.1
1923	220	56	276	6.1	1.7	4.0	4.1	1.0	2.6
1924	302	71	373	8.2	2.2	5.4	5.5	1.3	3.4
1925	341	81	422	8.8	2.3	5.7	6.2	1.5	3.8
1926	333	89	422	8.4	2.7	5.8	5.9	1.6	3.7
1927	440	114	554	10.1	3.2	7.0	7.6	2.0	4.8
1928	430	79	509	9.1	2.0	5.9	7.2	1.3	4.3
1929	459	78	537	9.7	2.0	6.3	7.5	1.3	4.4
1930	446	100	546	9.0	2.4	6.0	7.1	1.6	4.4
1931	497	102	599	9.8	2.4	6.5	7.7	1.6	4.7
1932	462	131	593	8.3	2.9	5.8	7.0	2.0	4.5
1933	556	150	706	9.3	3.0	6.5	8.3	2.2	5.3
1934	724	160	884	11.6	3.1	7.8	10.5	2.3	6.5
1935	620	164	784	10.1	3.0	6.8	8.8	2.4	5.6
1936	638	188	826	10.0	3.4	6.9	8.9	2.6	5.8
1937	714	163	877	10.5	2.8	7.0	9.7	2.3	6.0
1938	679	152	831	10.1	2.6	6.6	9.1	2.1	5.0

^{*}Includes nine months due to change in fiscal year.

^{**}Population of State in intercensal years is estimated.

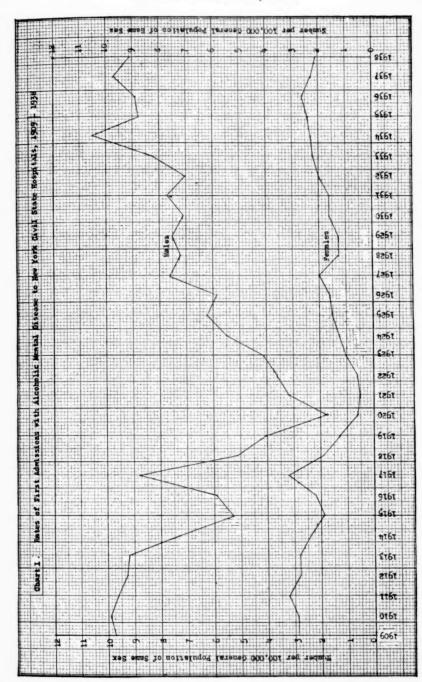
FIRST ADMISSIONS, 1909-1938

The number and sex of new cases of alcoholic mental disease admitted annually to the New York civil State hospitals during the 30 years from 1909 to 1938, inclusive, are shown in Table 1. The table shows also for each year the percentage constituted by the alcoholic cases among all admissions and the rate of the alcoholic cases per 100,000 of general population. The data are also shown graphically in Chart 1.

The data in Table 1 reveal striking variations in the yearly first admissions during the period under consideration. It is presumed that a like variation occurred in the extent of alcoholic indulgence in the several years. For these effects certain causes, which will later be explained, stand out prominently; other causes undoubtedly operated but were less discernible. Starting with 1909, we find a rate of first admissions with alcoholic mental disease per 100,000 of population among males of 9.7 and among females of 2.9. During the next two years only minor changes in rate occurred, but in the following three years a declining trend was in evidence. In 1914, the rate for males dropped to 7.3 and the rate for females to 2.4. In the succeeding year there was a further decline in rates to 5.3 and 1.9, respectively. It is generally believed that the lessened frequency in alcoholic mental disease from 1912 to 1915 was due to the spread of "dry" territory in the State by means of local option and to the active propaganda against alcoholism carried on during this period.

The fiscal year which ended September 30, 1914, saw the beginning of the first World War. The succeeding four years constituted a period of apprehension and anxiety. The rate of new alcoholic cases among males shot up from 5.3 in 1915 to 8.8 in 1917, and among females from 1.9 to 3.2.

Following the entrance of the United States into the war, April 6, 1917, a new era with respect to the liquor traffic was ushered in. To aid in the training of enlisted men, the sale of intoxicating liquors at any military station or cantonment, or to any member of the military forces while in uniform, was prohibited by an act of Congress approved May 18, 1917. To save food supplies, the distillation of alcoholic beverages from grains and other foodstuffs was prohibited September 8, 1917, for the duration of the



war. Congress passed a resolution in December, 1917, submitting a prohibition amendment to the states. By January 16, 1919, this amendment had been ratified by three-fourths of the states. It went into effect January 17, 1920. Previous to the full ratification of the amendment, the President had signed (November 21, 1918) the Food Stimulation Bill providing for nationwide prohibition from June 30, 1919, until the demobilization of the army.

In New York State, similar restrictions were placed on the liquor traffic by acts of the State Legislature. Chapter 521 of the Laws of 1917 authorized the excise commissioner to suspend the sale of liquor in the proximity of camps or barracks for State or Federal troops, or near munition factories. In 1919, the State Legislature ratified the prohibition amendment. Chapter 155 of the Laws of 1921 amended Article 113 of the Penal Law, repealed the liquor tax law and the local option law, and prohibited the manufacture and sale of intoxicating liquor for beverage purposes. Chapter 5 of the Laws of 1921 required peace officers to enforce the provisions of Article 113 of the Penal Law relating to intoxicating liquors.

The effect of these restrictive measures, together with the elevation of the national morale, which had occurred during the war, is seen in the marked decline in new cases of alcoholic mental disease admitted to the civil State hospitals from 1917 to 1922. In the former year, 594 cases had been admitted; in 1920 the number dropped to the low point of 122 and was only 193 in 1921 and 226 in 1922. In other states, similar reduction in alcoholic admissions was reported. In Massachusetts, for example, the new alcoholic cases declined from 511 in 1917 to 102 in 1920.

In spite of the overwhelming sentiment supporting the restrictions placed on the liquor traffic during the war, a large minority was ready to criticize the operations of the prohibitory laws when peace was restored. Individual criticisms were succeeded by organized propaganda and organized violations. Opponents of the laws obtained political support and in New York State in 1923 were able to secure repeal, by Chapter 871 of the Laws of 1923, of Article 113 of the Penal Law and Section 802b of the Code of Criminal Procedure which provided for the enforcement of State laws relating to the liquor traffic.

In the absence of State control, violators multiplied; the overindulgence in alcoholic beverages which followed is reflected in the increased number of alcoholic first admissions occurring from 1923 to 1927. The new cases in the latter year numbered 554, the largest number in any one year since 1917. The trend in alcoholic admissions was almost level during the succeeding five years.

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In 1933 came the repeal of the Eighteenth Amendment and the passage in New York State of the Alcoholic Beverage Control Law, Chapter 180 of the Laws of 1933. This law was superseded by Chapter 474 of the Laws of 1934. The first law placed the supervision of the liquor traffic in an "Alcoholic Beverage Control Board"; the second law designated the board as "The State Liquor Authority". This authority consists of five members. The New York City Alcoholic Beverage Control Board has four members, and county boards each have two members. The State Liquor Authority is given power to issue and revoke licenses for the sale of intoxicating liquors, but the enforcement of the law devolves on local officials. Under this law the liquor traffic probably has more liberty than at any time subsequent to 1896, when the original State Liquor Tax Law was enacted (Chapter 112, Laws of 1896).

The institution of the new laws in 1933 and 1934 was accompanied by a marked upward rise in the admissions of new cases of alcoholic mental disease. The number increased from 593 in 1932 to 706 in 1933, and to 884 in 1934. The substantial reduction which occurred in 1935 was followed by increases which were not as marked as those of 1933 and 1934.

Chart 1 shows clearly the extent by which male admissions with alcoholic disease exceed the female. The fluctuations in rates among men, thought to be due principally to changes in legal restrictions on the liquor traffic, are striking. It is believed that the trends in alcoholic first admissions as shown by Chart 1 constitute a rough index of the consumption of alcoholic beverages. As consumption increases, alcoholic admissions to mental hospitals increase.* Convictions for intoxication are likewise affected.

^{*}Pollock, H. M.: Alcoholic psychoses before and after prohibition. Ment. Hyg., VI:4, October, 1922.

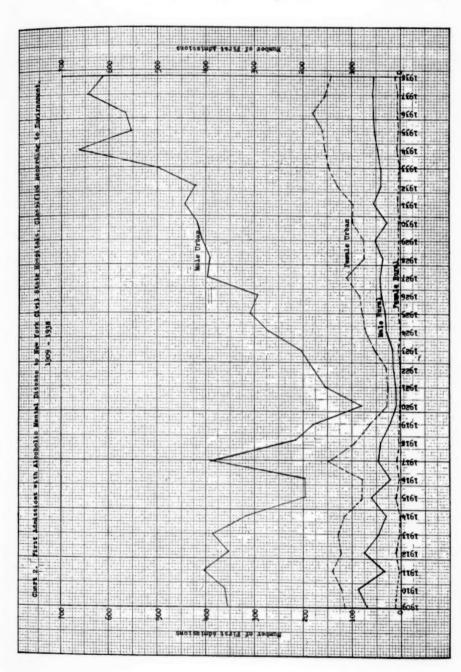
Further light is shown on the origin of the alcoholic cases by Table 2 and Chart 2. It is evident that the cases come principally from cities and it is noteworthy that female cases in cities are more numerous than male cases in rural districts. The fluctuations in rates above described are seen to be due mainly to the variations

Table 2. First Admissions with Alcoholic Mental Disease to New York Civil State Hospitals, (classified according to environment), 1909-1938

Year		Total			Urban			Rural†			certa l oth	er
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
1909	433	128	561	356	115	471	69	11	80	8	2	10
1910	452	131	583	361	121	482	87	8	95	4	2	6
1911	444	147	591	406	142	548	34	4	38	4	1	5
1912	434	131	565	353	121	474	75	8	83	6	2	8
1913	438	134	572	387	129	516	47	4	51	4	1	5
1914	348	116	464	316	115	431	31	1	32	1		1
1915	255	90	345	194	81	275	61	9	70			
1916*	215	82	297	195	80	275	20	2	22			••
1917	437	157	594	389	148	537	45	7	52	3	2	5
1918	257	97	354	215	94	309	41	3	44	1		1
1919	204	65	269	180	63	243	24	2	26			2
1920	90	32	122	80	30	110	10	1	11		1	1
1921	167	26	193	156	26	182	11		11			
1922	194	32	226	177	32	209	15		15	2		2
1923	220	56	276	205	53	258	15	3	18			
1924	302	71	373	271	71	342	31		31			
1925	341	81	422	308	78	386	33	3	36			
1926	333	89	422	293	85	378	39	4	43	1		1
1927	440	114	554	395	111	506	41	3	44	4	••	4
1928	430	79	509	392	76	468	37	3	40	1		1
1929	459	78	537	407	75	482	52	3	55			-
1930	446	100	546	418	98	516	28	2	30		••	
1931	497	102	599	443	97	540	54	5	59		• •	**
1932	462	131	593	421	128	549	40	3	43	1	• •	1
1933	556	150	706	498	147	645	41	2	43	17	1	18
1934	724	160	884	662	152	814	47	7	54	15	1	16
1935	620	164	784	554	160	714	53	4	57	13		13
1936	638	188	826	566	179	745	56	6	62	16	3	19
1937	714	163	877	644	154	798	57	6	63	13	3	16
1938	679	152	831	613	142	755	56	8	64	10	2	12
Total	12,229	3,246	15,475	10,855	3,103	13,958	1,250	122	1,372	124	21	145

^{*}Includes nine months due to change in fiscal year.

[†]Includes villages from 1909-1915.



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in male urban admissions. Only 122 female cases were admitted from rural districts during the entire 30 years covered by the study. In 1921, 1922 and 1924 there were no female cases from rural districts. Apparently, changes in legal restrictions are reflected to the greatest extent by male admissions from cities.

The race distribution of the alcoholic first admissions is shown for the years 1914 to 1938 in Table 3. Of the 12,603 admissions.

Table 3. Racial Distribution, First Admissions with Alcoholic Mental Disease to New York Civil State Hospitals, 1914-1938

Year		Total		W	hite	Ne	gro	All oth	
1081	M.	F.	T.	M.	F.	M.	F.	M.	F.
1914	348	116	464	342	112	6	4		
1915	255	90	345	248	89	7	1		
1916*	215	82	297	206	80	9	2		
1917	437	157	594	423	149	14	8		
1918	257	97	354	248	92	9	5		
1919	204	65	269	196	63	8	2	• •	
1920	90	32	122	89	31	1	1	• •	• •
1921	167	26	193	157	25	5	1	5	
1922	194	32	226	190	30	4	2	• •	
1923	220	56	276	213	54	5	2	2	
1924	302	71	373	279	66	23	5		
1925	341	81	422	329	78	11	3	1	
1926	333	89	422	319	85	12	4	2	
1927	440	114	554	407	98	30	16	3	
1928	430	79	509	402	70	23	8	5	
1929	459	78	537	415	64	34	13	10	;
1930	446	100	546	393	86	43	14	10	
1931	497	102	599	452	81	39	20	6	
1932	462	131	593	411	114	48	14	3	
1933	556	150	706	501	124	54	26	1	
1934	724	160	884	627	122	94	38	3	
1935	620	164	784	523	126	94	38	3	
1936	638	188	826	535	145	100	43	3	
1937	714	163	877	593	125	117	38	4	
1938	679	152	831	581	113	97	39	1	
Total	10,028	2,575	12,603	9,079	2,222	887	347	62	

^{*}Includes nine months due to change in fiscal year.

11,301, or 89.7 per cent, were white; 1,234, or 9.8, were negroes; and 68, or 0.5, were members of other races. A surprisingly small number of negroes was admitted prior to 1924. Before that year, the annual number of negro males admitted exceeded 10 only in 1917 and the number of negro females did not exceed 10 in any year prior to 1927.

On account of the small number of negro first admissions and the rapid changes in the negro general population, satisfactory comparative rates for whites and negroes for the several years cannot be computed. In the year 1920, only two negro alcoholic cases were admitted. In the year of 1930, the rate per 100,000 of general population of same race for the negroes was 13.8 and for the whites, 3.94. From 1933 to 1938 noteworthy increases in negro admissions occurred.

OUTCOME OF ALCOHOLIC MENTAL DISEASE

Table 4 shows discharges and deaths along with first admissions and readmissions of patients with alcoholic mental disease for each year from 1909 to 1938. In the entire period there were 15,475 first admissions, 3,104 readmissions, 13,239 discharges, and 3,633 deaths in the hospitals. The number of readmissions was 20.1 per cent of the number of first admissions and 23.4 per cent of the number of discharges. The number of patients dying in the hospitals was 23.5 per cent of the number of first admissions.

The annual recovery rates by sex per 100 of all admissions are shown in Table 5 and Chart 3. These rates fluctuate to a marked extent because of variations in both admissions and recoveries. As a rule in this mental disorder, recovery rates are higher among males than among females. It is probable that some of the latter are admitted in a late stage of the disease from which recovery is difficult. The general recovery rate for the males for the entire period was 53.4, and for the females, 42.7.

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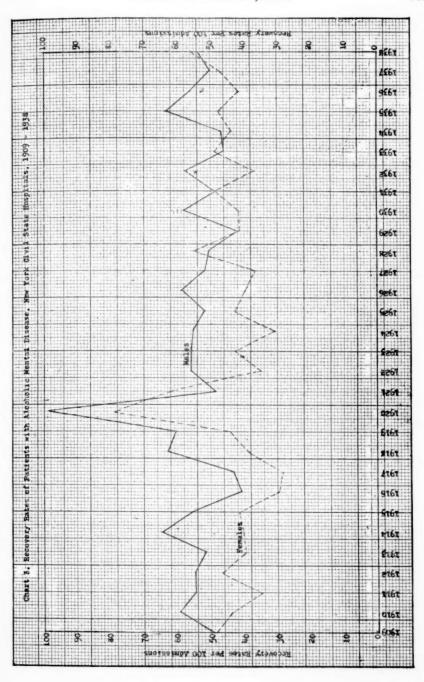
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Table 4. Admissions, Discharges and Deaths of Patients with Alcoholic Mental Disease, New York Civil State Hospitals, 1909-1938

	1		Admiss	ions		Discharges							
Year		First		Readmissions		Recovered		Much improved and improved		Unimproved		Deaths in hospital	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	P.
1909		433	128	93	17	258	70	78	14	12	5	61	28
1910		452	131	94	17	323	65	83	19	14	2	86	33
1911		444	147	86	26	288	60	97	29	16	3	80	37
1912		434	131	95	22	288	71	100	25	23	3	87	43
1913		438	134	97	21	275	61	103	29	27	3	80	31
1914		348	116	70	21	269	55	96	41	23	1	89	45
1915		255	90	66	21	178	46	91	34	9	2	69	37
1916*		215	82	40	16	104	29	43	25	5	3	54	36
1917		437	157	73	17	220	49	68	32	2	3	97	50
1918		257	97	54	16	195	43	80	44	2	1	94	36
1919		204	65	43	10	149	33	78	40	3	4	79	32
1920		90	32	27	5	115	29	44	20	4	2	55	23
1921		167	26	37	5	99	19	45	16	10		54	26
1922		194	32	35	11	128	15	51	14	6	1	47	24
1023		220	56	45	15	148	30	39	9	6		52	30
1924		302	71	53	21	196	28	45	25	11	3	62	29
1925		341	81	67	13	211	40	56	14	9	3	72	41
1926		333	89	69	17	236	42	55	24	11	2	91	53
1927		440	114	64	14	261	47	59	14	10	3	78	48
1928		430	79	73	14	254	51	77	10	12	1	79	28
1929		459	78	76	19	224	40	93	13	5	1	97	36
1930		446	100	78	16	304	48	94	19	12	1	78	30
1931		497	102	88	15	285	57	103	18	10	1	114	42
1932		462	131	84	18	315	55	75	19	8	1	116	28
1933		556	150	98	25	301	85	78	23	13	2	93	34
1934		724	160	127	29	397	83	116	29	12	3	122	45
1935		620	164	152	30	491	92	143	26	16	1	125	36
1936		638	188	153	36	443	93	150	41	9	6	123	39
1937		714	163	186	36	450	93	150	47	12	1	125	4
1938		679	152	203	35	474	104	188	49	9	4	93	3
Tot	tal	12,229	3,246	2,526	578	7,879	1,633	2,578	762	321	66	2,552	1,08

^{*}Includes nine months due to change in fiscal year.



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Table 5. Recovery Rates Per 100 Admissions of Patients with Alcoholic Mental Disease, New York Civil State Hospitals, 1909-1938

1909	49.0 59.2 54.3 54.4 51.4 64.4	48.3 43.9 34.7 46.4 39.4	48.9 55.9 49.5 52.6
1911	54.3 54.4 51.4	34.7 46.4	49.5
1912 1913	54.4 51.4	46.4	
1913	51.4		52.6
		39.4	
****	64.4		48.7
1914		40.1	58.4
1915	55.5	41.4	51.9
1916*	40.8	29.6	37.7
1917	43.1	28.2	39.3
1918	62.7	38.1	56.1
1919	60.3	44.0	56.5
1920	98.3	78.4	93.5
1921	48.5	61.3	50.2
1922	55.9	34.9	52.6
1923	55.8	42.3	53.0
1924	55.2	30.4	50.1
1925	51.7	42.6	50.0
1926	58.7	39.6	54.7
1927	51.8	36.7	48.7
1928	50.5	54.8	51.2
1929	41.9	41.2	41.8
1930	58.0	41.4	55.0
1931	48.7	48.7	48.7
1932	57.7	36.9	53.2
1933	46.0	48.6	46.6
1934	46.7	43.9	46.2
1935	63.6	47.4	60.4
1936	56.0	41.5	52.8
1937 1938	50.0 53.7	46.7 55.6	49.4 54.1

^{*}Includes nine months due to change in fiscal year.

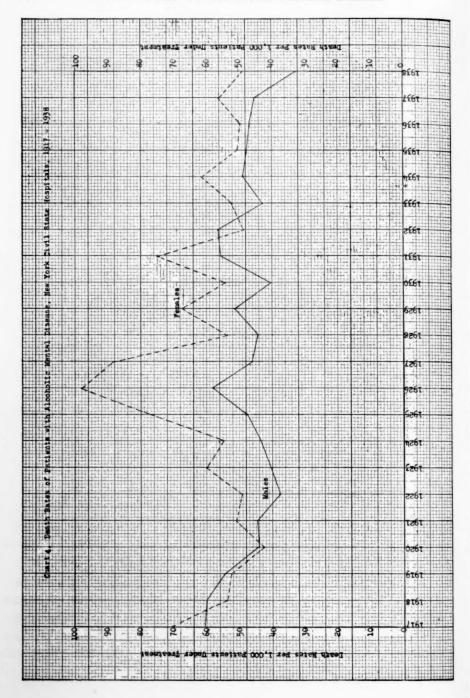
In Chart 3, the fluctuations in recovery rates follow a jagged sawtooth pattern except in the years 1918 to 1922 when exceptionally high rates are seen for both males and females. The reduction in admissions in 1919, 1920 and 1921 was undoubtedly a factor in the causation of the high recovery rates in those years.

Annual death rates per 1,000 patients with alcoholic mental disease under treatment are available only for the years from 1917 to 1938. The rates for the several years are shown in Table 6 and

TABLE 6. DEATH RATES PER 1,000 UNDER TREATMENT OF PATIENTS WITH ALCOHOLIC MENTAL DISEASE, NEW YORK CIVIL STATE HOSPITALS, 1917-1938

Year		Males	Females	Total
1917		60.6	70.6	63.7
1918		60.0	53.9	58.2
1919		54.4	52.4	53.8
1920		44.0	42.5	43.6
1921		44.4	50.9	46.3
1922		37.5	49.1	40.7
1923		40.4	59.9	45.9
1924		43.6	54.8	46.7
1925		47.8	76.8	55.4
1926		58.1	97.8	68.3
1927		46.0	88.2	56.3
1928		44.2	53.6	46.3
1929		51.3	67.2	54.8
1930		40.2	54.1	43.3
1931		55.8	74.7	59.9
1932		56.3	48.5	54.6
1933		42.9	52.1	45.1
1934		48.8	61.4	51.5
1935		47.7	50.3	48.3
1936		46.9	49.7	47.5
1937		45.2	56.0	47.7
1938	•••••	32.5	48.8	36.1

Chart 4. The rate for both sexes combined varies from 36.1 in 1938 to 68.3 in 1926. The rate for males varies from 32.5 in 1938 to 60.6 in 1917; and the rate for females from 42.5 in 1920 to 97.8 in 1926. The striking fluctuations in rates are seen at a glance in Chart 4. The generally higher death rates among females may indicate that the disease affects females more seriously or that the female patients are in poorer condition when admitted. The latter is probably the more plausible explanation.



Reference to Chart 4 shows that comparatively low death rates prevailed in both sexes from 1919 to 1922. The rates rapidly increased in succeeding years, especially among females, and reached their high point in 1926. Then followed a rapid decline for two years and marked irregularity for the succeeding nine years. Low rates for both males and females occurred in 1938.

ALCOHOLIC ADMISSIONS TO BELLEVUE HOSPITAL

An interesting sidelight on the effects of the consumption of alcoholic beverages during the 30 years under review is found in the accompanying table (No. 7) which was furnished the writer by

TABLE 7. ALCOHOLIC ADMISSIONS TO BELLEVUE HOSPITAL*

Year	Male	Female	Total
1909	8,086	2,435	10,521
1910	8,610	2,697	11,307
1911	7,111	2,427	9,538
1912	6,459	2,278	8,737
1913	6,609	2,131	8,740
1914	6,394	2,234	8,628
1915	6,014	2,063	8,077
1916	6,829	2,092	8,921
1917	5,076	1,367	6,443
1918	4,525	3,260	7,785
1919	4,810	3,152	7,962
1920	1,642	449	2,091
1921	1,931	450	2,381
1922	3,305	778	4,083
1923	4,685	1,092	5,777
1924	5,295	1,139	6,434
1925	4,880	1,055	5,935
1926	4,938	986	5,924
1927	5,520	1,027	6,547
1928	5,881	1,118	6,999
1929	5,995	1,071	7,066
1930	7,337	1,432	8,769
1931	8,037	1,331	9,368
1932	7,049	1,212	8,261
1933	8,260	1,282	9,542
1934	6,279	1,370	7,649
1935	7,506	1,633	9,139
1936	10,064	1,892	11,956
1937	9,532	1,861	11,393
1938	9,953	2,131	12,084

^{*}Includes inebriates and patients with alcoholic mental disease.

Dr. Norman Jolliffe of the Bellevue Hospital, New York City. The table shows the alcoholic admissions to that hospital during the 30 years, 1909 to 1938, inclusive. Such admissions consist in part of inebriates and in part of persons suffering from alcoholic mental disease. Many of the cases are picked up by the police on the streets of the city and sent to Bellevue for examination and treatment.

Referring to Table 7, we note that in 1909 there were 10,521 al. coholic admissions to the Bellevue Hospital. In the succeeding year the admissions increased to 11,307. This figure was not exceeded until 1936. Beginning with 1911, a declining trend in admissions set in. With some irregularity the decline continued to 1920, when only 2,091 alcoholic cases were admitted. In 1921, the number increased slightly to 2,381. A marked upward trend began in 1922, when the admissions increased to 4,083. The rising trend continued with slight interruptions to 1938. In that year the number of alcoholic admissions was 12,084—the largest annual number in the entire period of 30 years. The trends in the admissions of males and females are in general similar but have some peculiar divergencies. The increase in female admissions from 1,367 in 1917 to 3,260 in 1918 is unexplainable. A similar jump in male admissions from 7,506 in 1935 to 10,064 in 1936 occurred without apparent adequate cause.

The frequency of the admissions to Bellevue during the 30 years covered by this study corresponds in general with the frequency of the cases of alcoholic mental disease admitted to the civil State hospitals as shown in previous tables. This fact indicates that the influences affecting the use of liquors during this period were operative not only in bringing patients to mental hospitals in varying numbers, but also in causing fluctuations in cases of inebriety. New York City, however, was not affected by local option. As previously mentioned, in the rural districts of the State there was considerable "dry" territory before the days of prohibtion and the increase of such territory undoubtedly affected the rate of alcoholic admissions to mental hospitals. However, anti-alcoholic propaganda appears to have had considerable effect in New York City, as the rate of admissions declined previous to wartime restrictions on the liquor traffic.

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In view of the fact that alcoholic mental disease is preventable and that effective methods for its prevention are known and are available, the data submitted in the foregoing review should have more than academic interest. In the 30 years reviewed, 15,475 persons in this State developed mental disease attributable to over-indulgence in alcoholic liquors and were admitted to the civil State hospitals. During the three years 1936, 1937 and 1938, the new alcoholic admissions averaged 843 per year. Although a large part of these patients will be discharged after treatment, they are likely to resume their former drinking habits. To a considerable degree, they represent a social and economic loss to society.

Table 7 shows that in the years 1936, 1937 and 1938 a total of 35,433 patients were admitted to the Bellevue Hospital for inebriety and alcoholic mental disease. The yearly average was 11,811. It is probable that most of these individuals have a confirmed alcoholic habit. According to reports of the Department of Correction, the total convictions in courts of special sessions for intoxication in New York State in the three years above mentioned were 112,609, an average of 37,536 per year. It may safely be assumed that such number represents but a small fraction of the persons who became intoxicated during a year.

These official figures show clearly the need of effectual measures for the prevention of alcoholism and alcoholic mental disease.

Thus far, most preventive measures have been directed toward the restriction of the liquor traffic. During the war period from 1914 to 1919 and for a few years thereafter, such measures produced the desired results. Later, sentiment in favor of the enforcement of restrictive laws died down, hence the laws became unpopular and noneffective.

For many years previous to prohibition, school children in New York State were taught the effects of alcoholic beverages and other narcotics. During and following prohibition, such teaching ceased to be emphasized.

The present Alcoholic Beverage Control Law prohibits the sale of alcoholic beverages to minors under 18 years of age, to intoxi-

cated persons and to habitual drunkards. No provision is made for the effectual enforcement of these provisions. The extent of their violation may be estimated from data concerning intoxication, alcoholism and alcoholic mental disease set forth in this article. It is evident that an alcoholic beverage control law which provides for licensing by a state board and for enforcement by local officials is virtually noneffective in preventing intoxication and other effects of overindulgence in alcoholic liquors.

A scientific approach to the problem is needed. The economic, political, social and health aspects should receive the most careful study. If it is found that the taxes paid by the liquor traffic are not largely extracted from the earnings of the poor; if it is found that the drink habit makes workers in all occupations more reliable and more efficient; if it is found that the free use of alcoholic beverages promotes health and good citizenship and lessens crime and accidents; if it is found that the liquor traffic as a whole constitutes a real asset in the balance sheet of human welfare—if these things are found, then the liquor traffic should be encouraged, and everyone, both young and old, should form the drink habit. If the findings of the study do not reveal the benefits mentioned but the opposite, appropriate action should be taken. The effectual measures taken by health departments to control communicable disease might receive consideration. Relief from intoxication, alcoholism and alcoholic mental disease cannot be obtained by collecting fees, closing the eyes and saying "All is well".

Statistical Bureau New York State Department of Mental Hygiene Albany, N. Y.

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SOME IMPLICATIONS OF PSYCHOTIC STATES*

BY GEORGE S. SPRAGUE, M. D.

Psychiatry directs itself first of all to the task of care and treatment of its patients, and it has taken relatively little time from the problems of therapy to devote itself to discussions concerning its nature and scope, its methods of approach, and the theoretical substructure of its practice. Such consideration may be useful from time to time, not necessarily because it brings anything new and original, but as a means of crystallizing and of reemphasizing psychiatric principles of procedure. To do a thing daily does not imply that one has specific words to describe it. It is therefore proposed to discuss in this communication some of the implications derivable in our study of psychoses in order to give greater clarity and accent to some seemingly obvious values.

It is so easy, when we observe phenomena which are themselves of interest, for us to devote our thoughts and attention to those phenomena for their own sake. This is true especially if they are pathological or abnormal conditions which thus arouse our desire to correct or to alleviate them. Our natural tendency is to ferret out all the unfortunate details with a view toward eradicating them as far as proves possible. In so doing we must perforce focus attention upon the symptoms themselves, losing sight of some of their significant implications. We are likewise encouraged in such a course by the pressure of the patient's family, whose members ask for information concerning his condition, seek bulletins as to the patient's improvement, and expect to be called upon to furnish the history of the unusual symptomatology.

A powerful assumption is contained in all this, none the less because it is rarely stated overtly but is content to exert its tacit influence upon us. It seems natural to accept as obvious that when an individual is well that is fine, and that when he becomes ill this is an unfortunate departure from the state of health consisting in the presence of various symptoms. These constitute the illness; they are brought before the specialist as the offending intruders. To have a complete grasp of the situation, he seeks to ascertain

^{*}Read before the Southern Psychiatic Association, Louisville, Ky., October 9, 1939.

all the symptoms discoverable. Methods are then used in an attempt to terminate the unhappy state of affairs, the persistence of which is taken as continuing illness and whose ultimate cessation is interpreted as restoration to health.

The assumption is that the pathologic or psychopathologic data constitute the material upon which emphasis and thought should be focussed; that we have as our essential task the removal or the mitigation of these abnormal patterns; and that return of the patient to a symptom-free state is the correct objective.

Some important advances in the concepts of mathematics were achieved when Euclidean geometry was challenged by questioning the necessary inevitability of its postulates. Let us see whether by following such a lead we may find a hint toward broader psychiatric understanding. Let us begin by questioning the infallibility of the assumption above referred to, that the psychosis is properly the central point of interest, the chief difficulty of the patient, and that its eradication is our most important objective. If the customary attitude of mind is thus shaken out of its automaticity, we will be tempted to investigate further the problem of the psychosis with its relationships and significances.

There are indeed certain medical situations which may help to justify us in such an investigation. We can recall that although hypertension is a symptom of abnormal processes in the physiology, it may prove not to be an unmixed evil. It may serve a protective or adaptive function, so that it would be unwise to take measures to reduce the high blood pressure. Again comes to mind the fact that eyestrain from astigmatism is a malady which shows distressing and abnormal evidences. The oculist fits glasses and the eyestrain is removed, but the actual difficulty, the astigmatism,

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Such illustrative situations drawn from other provinces of medicine offer two suggestions. First, we may test the usefulness of a direction of study which varies from the obvious one. Instead of considering the psychosis as the center of our attention, perhaps it should, like the hypertension above mentioned, be studied only as a clue toward some further, some more basic problem. From that approach psychosis would become not the final point of study, but rather an indicator urging us on to matters elsewhere.

And second, we have the hint that the removal of psychotic symptoms may no more bespeak recovery than do corrective glasses imply that the defective eyes have ceased to be astigmatic. If this view be taken, we shall have to ask ourselves several questions: What then is the actual, fundamental problem in a psychosis? What attitudes is one to take with reference to the psychosis itself? Is psychosis ever a desirable protective device? There are still other queries.

Relative to the first line of inquiry, it has been suggested that the psychosis be taken as a starting point instead of as an endpoint in the psychiatrist's chain of reasoning. How can one seek out the relationships and the implications of psychosis? In the first place, it may be observed that the phenomenon has not merely occurred; it has happened to someone. This someone has been an individual with his own form of personality development, which he has been busily building up throughout his life. There have been various degrees of success in his efforts to establish appropriate habits of response to the life he has had to lead and to the impulses and tendencies which have arisen within him.

Thus it has come about that the patterns of response which indicate what we call his character or personality are created by a summation and resultant of the experiences of the individual. Some of these patterns are effective, sturdy, adequate and realistic. Others betray their inappropriate goals, their weakness, their lack of effective reaction to the realities of life. A complete inventory and analysis of all the personality factors in an individual would enable us to chart his assets and his liabilities as accurately in this realm as could be done with his financial situation. But this is rendered difficult by the obscurities, the reluctances and the lack of information usually here encountered.

One presents a certain impression to his fellow man, a sort of "general average" of personality. If he lacks something here, he may make it up a bit there. As a rule we are satisfied with such a state of balance in our neighbor, and think little further of him as having personality problems until perhaps he becomes our patient in a psychotic illness. At that point, probably for the first time, begins a study of the patient's "past history" so-called, as if the person who had had those experiences was someone other than

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the patient now before us. Our present concern is the fact that those earlier experiences were expressions of response by this same individual with much the same strengths and weaknesses in his personality balances, which are today revealed in a psychosis. We are tempted to ask how they were being revealed yesterday, when there was no psychosis.

In the more severe forms of mental illness, certain symptoms may become so intense as to obscure our recognition of any coherent picture which could be called the consistent total reaction-pattern of a personality. Let us therefore examine first those cases in which the individual presents still a moderately unified character. It will be in the discovery of certain traits which are substantially unchanged from their quality before illness commenced, that we shall receive an impression of stability, of the continuance of the personality of him who before had been well. But now he shows other traits somewhat different from the earlier ones. Instead of thinking of these traits simply as being new and different, it is possible to follow another course.

It is possible to group these new, changed portions of the character with the old customary patterns which were the habit tendencies previously active. Let us do this in such a way that each trait now newly presented is compared with the trait formerly shown in the state of health which was most nearly the response to the same type of situation before the onset of psychosis. As examples, one's attitudes concerning orderliness or spending money, or concerning self-confidence, may be cited. In this fashion we can obtain in each case a considerable amount of data, all arranged in pairs. Each pair gives information pertaining to the individual's personality tendencies in health and in disease.

"Then and now" we might be tempted to call it, but that rather natural attitude would obscure the very viewpoint which is being stressed. What is most instructive is not merely that our patient has changed, which seems to us obvious, but rather that on certain specific challenges for meeting life his method has changed from its usual form. Why should it change just on these particular ones among the many adaptive responses he has to make to life? Evidently here are some specific indicators of difficulties the individual has met in certain definite parts of his living adjustment. If the

usual pattern had seemed adequate and satisfying, he would not have changed it. If the problem had not been especially trouble some and urgently important for his adaptation, then he would surely not have gone into a psychosis trying to find some solution better than his former effort.

We are thus led to view a person's psychotic life and his non-psychotic life as being but two phases of his living, each of which has sought to meet the same types of conditions. In viewing the combination of these two sorts of reactions there is an added accent upon those issues which the patient finds especial difficulty in solving satisfactorily. And this in turn leads us at once to the study and the management of the actual problems in the patient's life program, instead of our dealing simply with the immediately present abnormalities in their own right.

That this is a proper and justifiable approach to the individual's troubles will be at once corroborated if we turn to his previous nonpsychotic state and study his methods of dealing even then with the issues which are now causing eccentric and faulty efforts at adjustment. It is the rule that there also we can find difficulties, tensions, emotional strains radically out of proportion with the real situation. Many of one's traits of character thus give evidences that inner uneasiness is impairing the use of the most efficient and comfortable reactions. Those who are painfully shy, or who cannot dispense with unsuitable self-indulgence, for example, or those who become upset if given added responsibility, are in such ways giving evidence of disharmonies within themselves which may later be indicated by the use of other efforts at solution, in psychosis.

The psychotic picture, when it appears somewhere along in the life course of an insufficiently adjusted person, can be envisaged as an alternate effort he is making to reach a more comfortable adaptation to his problems. It forms a sort of reverse to which his nonpsychotic picture is the obverse. As with the two faces of a coin, these are each representative of the central value, but do not both appear at the same time. Perhaps the analogy can lead us to a further observation. If we wish no longer to see the side of the coin which now confronts us, we can turn it over but then have once more the obverse. So it is with our patient. How can we be

sure when in a life history the psychotic phase again gives way to another state, that it will not be simply the former obverse with all its difficulties and weaknesses? Perhaps the restoration of the patient to his former so-called "health" will not be satisfying. The cure of falling off one's bicycle to the left is surely not to fall off on the right side.

We might say that by studying together both the patient's psychotic and his nonpsychotic reactions, pair by pair, as we have indicated, it is possible to arrive at a conception of the directions, the methods, and the vigor of his attempts to adapt to certain problems. If we combine all of the one side of these pairs, we have the description of his usual so-called healthy reaction-type. If we take the group of all the other halves of the pairs, we obtain the picture of the individual's psychotic responsive tendencies. It was stated above that in many cases a large part of the latter group of traits will form a duplication of the former healthy characterization. All the more, our attention will thus be drawn to the consideration of those tendencies which have become altered. But if the one group seems to us more bizarre than the other, that must not be taken to mean that the other is therefore a healthy and a proper attempt. Rather, we may use both as vantage points from which to work toward a new and still better method of reaction for the patient.

At this point a further question arises. If it has seemed to us that the psychotic attempt to work things out is less suitable than was the individual's former attempt when we would have said he was well, then why has he abandoned that method and made this eccentric effort? We can usually obtain an answer from the retrospective accounts of convalescent mental patients. Their descriptions of stress, dissatisfactions, indecisions, painful sense of pressures from within or from without, all portray an internal state of discomfiture. It matters not whether it is due to distress over difficulties in expressing one's own urges or whether there have been external problems to meet—some insecurity, some maladaptation, has burdened the patient even if no other person realizes it.

That is another reason for us to make use of the psychosis by studying its implications. Doing so demonstrates that the obverse state of "nonpsychosis" was not and therefore probably will not be satisfactory or stabile unless proper corrective measures can

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be instituted. Otherwise we are curing psychosis about as much as we cure the discomforts of winter's cold by burning coal until April arrives, when we "accomplish a cure" and discontinue treatment. And we run nearly as much risk of experiencing a relapse into a later attack in each instance. It cannot too often be stressed that psychosis is not actually the sufferer's trouble, but only one of the manifestations of the underlying difficulty.

Another of the implications to be sought in a psychosis is to be derived from a further direction of study. The implications thus far considered have been obtained from a consideration of the patient's stresses and feelings of discontent. We have therefore been looking at both the psychotic and the nonpsychotic phases of the patient's life. We may now note two more manifestations of the psychosis itself from which further understandings of the individual's status may be drawn. These are the vigor of the psychosis and the amount of satisfaction which it gives to the patient. But first a parenthetical interruption must be made to clear up a question which might arise.

It has so far not been necessary to discuss the need for differentiating between the functional psychoses and those due to infections, tumors, or other organic disorder. In both types of mental illness the remarks would apply with equal force, and the deductions to be drawn would be the same. But when we propose to make any inferences upon the basis of the intensity of the psychosis, it should be emphasized that variations in the magnitude of neural involvement by organic pathologic processes show no necessary correlation with mental changes, such as sometimes does occur in relation to symptomatology of the motor system. It is not to be expected therefore that intensity of the psychotic illness as such will be materially influenced by the organic status. That is to say, more, or less, severe organic involvement does not cause, in itself alone, a corresponding accenting or diminution in the vigor of mental disease, as evidenced in the profundity of depression, the energy of destructiveness, and the like.

It seems then a justifiable inference that we are at liberty to find in the differences of vigor evidenced by a psychosis some hint relative to the manner in which the individual is dealing with his psychic problems, perhaps also some suggestive clue as to the

prognosis.

In line with the method of comparing the psychotic with the previous nonpsychotic tendencies we shall, while noting the vigor of the patient's psychosis, contrast it with his general energy of responsiveness to life before his illness. Thus one patient will be found to deal with life now in the same dull, uninterested way in which he habitually used to comport himself; another, a formerly quiet, self-effacing individual will now seem quite the opposite, roaring his commands and being assaultive. We are tempted to anticipate differently for the outcomes of two such persons and experience is likely to confirm us in this, hence we conclude that there may be restorative value in the expenditure of energies in psychosis.

A survey of many types of mental illness will add to our impression. We may decide at first thought that the depressive patient, who is inactive, disinterested, slow in thought and decision, yet who becomes well in due course, seems to form an exception. But here too there is constantly a considerable use of psychic energy at work, as evidenced in the maintenance of the status quo and in the vigor of the self-accusatory delusional constructions. Nevertheless, as soon as we attempt to set up a general rule to the effect that greater energy expenditure in psychosis betokens more favorable outcome another difficulty arises, for we recall the great and often longstanding vigor in such chronic and unfavorable illnesses

as some of those of the schizophrenic or epileptic groups.

Such a consideration shows that to mere strength of psychotic reactions must be linked other factors contributing to favorable prognosis and it is one of these, the question of the degree of satisfaction experienced by the patient, which it is proposed to discuss briefly in this connection. This is the more in point because of the well-recognized phenomenon of hospitalization which may be indicative of an actual gaining of satisfaction by the patient from his illness and from the resultant attentions and treatments, so that the urge to become well is diminished. Likewise from the actual experiencing of the activities, thoughts and feelings constituting his sickness, one may derive considerable gratification. We must therefore evaluate the various component pleasures and

displeasures which are produced in the psychosis, with a view toward forming an estimate of their balance. If there is less gain for the individual than there is loss of his wish gratifications, the prognostic outlook will correspondingly be affected favorably.

Among the factors which require evaluation in this complex of vigor, and of satisfaction in the psychosis, we have to consider such questions as these: whether or not the vigor is well directed toward some specific goal; whether some urge long in difficulty is now obtaining satisfaction; whether the tendency is sufficiently matured to indicate that an ominous regression is not occurring; and whether the psychotic activity and thinking is constructive or destructive. A most important consideration in these connections, not always easy to determine, concerns the possibility that the psychosis may be a temporary working-out of some situation and that, as when mending a leak in a pipe, one will thereafter resume the usual course of his customary way of life. Accordingly we attempt to see in the psychotic symptomatology whether its general trend seems to deal with basic issues or transiently with episodic issues.

The person who has reached the age of 50 with no marked psychic instabilities and then experiences a mild involutional upset, for instance, would obviously not be in as dangerous a predicament as would the boy who on first leaving home to attend boarding school retreats from all social contacts into a withdrawn hallucinosis. We seek therefore to obtain from the psychosis clues to indicate whether it is working away from some difficulty or is striving toward some achievement. The latter instance usually has a better prognosis. On the other hand, we may find evidence of a conflict so difficult for an individual that the flight into his psychosis offers him the only adaptation his personal limitations can achieve. Here, as in the protective hypertension, may lie the best compromise which can be attained. If so, perhaps we ought to regard such a psychosis as a sort of cure of the malady, albeit with a resulting deformity or scarring.

If this be not the case, we may expect the illness to change, to "squirm about" like a person in an uncomfortable bed, until the most satisfactory attitude possible has been found. It seems that this must be what occurs in the processes of recovery from a mental illness and that a readaptation of the person's inner strivings

to his situation is more properly descriptive than to think of some almost tangible something we call "illness" as having gone away. The mental sickness of man is a disturbance of his functioning, of the functional interplay of his various part functions.

The development of a psychosis must therefore be seen as a sort of commotion among formerly present components. If certain symptoms of psychopathology supervene, then that individual had had previously the requisite capacities for producing those symptoms, and those same capacities will remain even when the illness has again vanished. The psychosis thus contains an implication concerning some of the human tendencies which in the state of health will need to be dealt with in some manner, either by control, by redirection, by better satisfaction, or by changes in the outer world.

SUMMARY AND CONCLUSION

The above discussion has touched briefly upon some of the issues which lie below the surface-picture of every psychosis and about which the surface-picture can give us indications useful for our understanding, for therapy and for prognosis. Attention has been drawn to the conception of an individual with his psychic difficulties as having personality reactions with two appearances at different times. These may seem like health and psychosis, but are merely an obverse and a reverse indication of the same human problems. Some of the inferences, such as those derivable from data relative to the vigor and the satisfactoriness of the illness, have been outlined with a view to their use in forming a prognosis or in shaping our general envisagement of the psychiatric situation.

It is believed that by giving heed not only to the psychosis itself but also to such implied significances, the psychiatrist is in a better position to understand, to treat and to predict concerning psychotic states.

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PSYCHOSOMATIC ASPECTS OF CHANGES IN A CLINICAL SYNDROME OF GENERAL PARESIS*

BY G. M. DAVIDSON, M. D.

ORIENTATION

Alice in Wonderland was greatly annoyed by the suddenly vanishing and reappearing cat and asked him to stop the practice. The cat complied in the way of vanishing this time slowly, beginning with the tail and ending with the grin, which remained for some time after the rest had gone. "Well, I have often seen a cat without a grin," thought Alice, "but a grin without a cat! It is the most curious thing I ever saw in all my life!"

However, it is not only Alice who might be surprised by such a phenomenon. An eminent neurologist, while discussing at a recent meeting the relation of certain psychological phenomena to the brain, expressed surprise that certain psychologists and psychiatrists "see" psychological phenomena without the brain. The neurologist took the trouble to point out that there is, indeed, such a thing as a brain which is "the" organ of psychological manifestations, thus insisting that the grin and cat could be "seen" only together.

The neurologist evidently would not consider that Alice, nor the above-mentioned students of psychological phenomena, could possibly be optic eidetics. But what is more important, he would not take into consideration that the mental and physical are aspects of one and the same, the totality, which may be measured by different methods. The view expressed with regard to this totality seems fully justified by the advances of modern psychology. It ought indeed to be the ambition of the psychiatrist to ultimately reach physiological conclusions from mental manifestations. Not long ago, it would have required considerable courage to venture the foregoing statement. At present, the writer may lean comfortably upon the opinion of no less an authority than Kurt Goldstein, who has voiced that current knowledge has advanced to such an extent that it appears justifiable to make a diagnosis of a lesion

^{*}Read before the interhospital conference held at the New York State Psychiatric Institute and Hospital, New York, N. Y., April 18, 1940.

of the frontal lobes on the basis of mental changes. The writer has attempted to show, in a study concerning the involutional syndrome, that mental symptoms may give cues for physiological changes, even though their relationship remain unknown. This may be applied not only to the involutional psychoses but also to other mental states.

As an alternative to the advanced attitude expressed above and to the traditional view of the medical man voiced by the "neurologist", there is the psychosomatic approach of which we hear so much these days. Since there is little uniformity in psychiatric terminology, it is appropriate to define the term "psychosomatic". From studies of the evolution of the total personality, we realize that personality is segmental and hierarchical in its integration. We know that differentiation of the viscera and glands occurs prior to that of the nervous system. We know further that the anabolic parasympathetic nervous system develops before the catabolic sympathetic, which facts suggest that the central nervous system requires for its proper functioning continuous impregnation with necessary biologicals which are produced at various levels of the total personality. We recognize that while the psyche is constructed and oriented upon the brain, its horizon is much wider than neurological mechanisms. It is only in action that both fuse to form an ensemble.

If we consider the foregoing, the psyche will require for its proper expression a certain neurohumoral equilibrium which in turn is rooted in and nourished by the totality. Consequently, when we have an expression of the total personality of which the psyche is, figuratively speaking, its projected summit, the activity will be "psychosomatic". This implies an integrated, continuously functioning interaction of psychical and somatic elements normally present in both total and partial patterns of behavior and covering both longitudinal and latitudinal sections of activity. In other words, the term psychosomatic ought not to be interpreted to imply simply a combination of somatic and psychical elements of a disease process; because as such it would refer only to a cross-section. Moreover, in spite of the change of terminology it would still refer to the "old" dualism which makes, to quote von Hornbostel, sound and sight, inner and outer, body and soul, God and

the world to fall apart. Thus, "psychosomatic" indicates an interwoven ensemble of both elements. Some may see a contradiction in the expressed equipotentiality of the mental and the physical, and the idea of fusion of both into one. But the contradiction is merely apparent. Both approaches refer to one and the same, the totality, which may be viewed from different angles; the former sizing up a phenomenon, the latter giving hints as to its mechanism.

The stand taken allows us to study an interesting phenomenon not infrequently observed. This consists in the change of the character of a clinical syndrome, the original form of which may have persisted for a considerable time. The mechanism of such change has not as yet been satisfactorily explained. It has, however, been hinted that a certain disease, such as pellagra, might under circumstances produce a change in syndrome. If so, then it would refer to metabolic aspects of the problem. We shall see to what extent the psychosomatic evaluation of a syndrome may help to clarify the situation presented in the following case.

CASE REPORT

The patient was a male, age 60, of mixed race, and unmarried. The family history recorded that a maternal aunt was psychotic after a brain injury. The makeup of the immediate family suggested a familial schizothymic trend. The patient was born in New York City. His birth and early development were given as uneventful. However, he was pampered by his mother, for whom he formed a strong attachment. As a child he had pneumonia and diphtheria. It is said also that he had suffered some indefinite throat complaint all his life. After graduation from public school he entered an undertaker's business; later he learned to be an embalmer but did not like the work. It would make him feel nauseated, he claimed. However, he was moderately successful. Otherwise, he was described as a sensitive, stubborn, anxious and unstable person. He took alcohol in moderation but had a poor tolerance thereto, becoming argumentative after a small intake. His adult sexual history was as follows: At the age of 20 he had intended to marry a neighbor girl, but was not allowed to do so by his mother, whom he obeyed. At 25 he was attracted by a 50-yearin-

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old widow (the patient was the undertaker in the case of her husband), and associated with her for several years. His sex life was otherwise apparently episodic in character. He contracted syphilis at the age of 30 and received treatment (details not known). At about that time, the patient experienced his first mental attack, which was characterized by fears: he was afraid to look out of a window or to look at or drive over snow (it was winter). eventually recovered. Seven years later, at the age of 37, the patient began to manifest mental symptoms which continued thereafter in one form or another. These began with emotional instability, irritability and excitement. He became boastful, thought he possessed great strength. Later he felt "fed-up" with "worldly goods" and wanted to become a priest. He blamed his relatives, especially a brother, for imaginary wrongs. He was hospitalized at the age of 45 because of an argument with a police officer who found a blackjack on him after his arrest.

In the hospital, a diagnosis of general paresis was made. The patient showed improvement after four months residence, was paroled and discharged, being noted as improved. About one year later, he required another hospitalization because he had become again boastful, grandiose, euphoric and excitable, showing flight-of-ideas. His sensorium was clouded. After about four months hospitalization, he was allowed on parole. After discharge, he was taken care of at home for some four years. Later, he again became expansive, excited, threatening, and was hospitalized at the age of 52, since which time he has remained in the hospital except during brief periods of parole.

At the time of this readmission, the patient showed a distinct change in clinical picture. While in the past he had been essentially expansive (showing only vague paranoid ideas toward his family), he now presented a florid paranoid trend directed toward another patient. Despite the fact that the other was transferred to another hospital, he still maintained the trend eight years later.

When examined by the writer, he was seen up and about, calm and composed, conversing at ease. He showed no disorder of stream of thought, being relevant and coherent. Emotionally, he was dull; has facial expression appeared "washed-out". He expressed annoyance with his status and complained bitterly of persecution by the other patient. He compained that the latter made him do atrocious things, for instance attacking his sister-in-law, performing fellatio, swallowing the "nasty serum", and smelling most disagreeable odors. He asserted that he changed his taste during a meal so that everything tasted bad; he continuously heard his "enemy" calling him all sorts of vile names. He believed that all this was possible because of telepathy. He further expressed death wishes. He was oriented. Performance on memory and other tests of the sensorium was noted as fairly good, considering the nature of the patient's illness: The defects were minor in character, his speech was only mildly affected, and he showed minimal neurological changes. A year later he began to slump, requiring bed care.

COMMENT

In summing up this case, we may say that the family history has shown some evidence of a hereditary schizothymic element which manifested itself to some extent in the makeup of the patient. He was sexually and socially maladjusted, and had a poor tolerance to exogenous influences, such as alcohol, syphilitic infection, and work. His first mental attack, from which he apparently recovered, was of a psychoneurotic character. When he first developed general paresis, the syndrome shown was one of the expansive type which he had maintained for some 15 years. This changed to a definite paranoid state, which he sustained for eight years until seen by the writer, and which he retained thereafter.

One may ask, what brought about the change in the clinical manifestations? We cannot, of course, be satisfied with the diagnosis of general paresis alone, even if a convincing pathological state is present, because classification is not an end in itself but simply serves to separate clinical data. Moreover, we know that causes are multiple, rooted in various levels of the total personality. The writer therefore differentiates the following sources which may give rise to paretic symptoms: (1) structural changes of the brain; (2) toxic states produced by the spirochetes, by elements of the intermediate metabolism and those due to impaired function of various visceral levels; and (3) other constitutional elements instrumental in the integration and defense of the total personality. It

is for the reasons given that the paretic may show various clinical syndromes, such as the predominantly demented, the expansive, the depressive, the schizophrenic, and so forth. Commenting upon the latter, Kraepelin⁴ observed that better knowledge of pathological data may elucidate the nature of the respective syndromes. Kraepelin thought of cerebral localization, which refers to our source 1. This did not materialize. However, the other two sources may give more satisfactory insight if properly evaluated.

Regarding the case here discussed, it is noteworthy that the changes occurred when the patient was 52 years of age. Questioning ascertained that he was passing at that time through the involutional period. There was a flareup of libido and he felt " a rush of all ambitions", followed by anxiety. It is this setting which apparently facilitated the release of his original psychosexual constellation projected into a homoerotic trend. Of other symptoms, there were auditory hallucinations of a derogatory, threatening and homoerotic character. There were also olfactory hallucinations which the writer has interpreted as symbolizing ideas of guilt, and death wishes. These symptoms on the mental level confirm summarily the presence of physiological changes of involution. as discussed in a previous study² on the subject. It may therefore be concluded that, from a psychosomatic angle, the implications of involution were responsible for the changes in the clinical manifestations of the case.

It may also be observed by the writer that, in his experience, certain cases of the depressed, agitated or paranoid types of general paresis owe the above-mentioned aspects of the clinical syndrome to involutional changes. In fact, the onset of paresis in such cases takes place most often at middle age; moreover, the symptoms of involution may be readily ascertained if one is looking for them.

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THE PSYCHOLOGY OF SUDDEN AND PREMATURE GRAYING OF HAIR*

BY HYMAN S. BARAHAL, M. D.

During the past few years the term "psychopathology" has assumed a new significance and interpretation. It now implies not only an understanding of the psychological mechanisms involved in a mental reaction but, with our newer psychosomatic outlook, also the organic pathology discernible in an apparently purely psychogenic disturbance. As has been frequently stated, psyche and soma are one and inseparable, and a discussion of any pathological condition is necessarily incomplete unless it takes this fact into consideration.

The graying of hair, or the development of canities, has undoubtedly mystified mankind throughout the ages. In history, fable, fiction, and song, it has become synonymous with old age, wisdom and reverence. In his vanity, Man has feared its appearance as an indicator of the beginning of the final, irreversible, physical, mental and sexual decline, but once its appearance becomes inevitable, has capitalized on it in demanding and receiving an increased amount of respect from his pigmented associates. It is as if the mere change in the color of his hair imbued a man with qualities and attributes which he previously may have lacked.

To the psychiatrist the subject is of great interest because of the frequent references made regarding the relationship between gray hair and emotional states. It is a commonly accepted belief among the general population that prolonged anxiety may hasten the appearance of gray hair and that a sudden emotional shock may actually produce sudden graying. It is the purpose of this paper to attempt to correlate some of these popular beliefs with the meager scientific data obtainable on the subject from both the organic and the psychobiological viewpoints.

It will be well, for better orientation, to review the histology of the normal hair and hair follicle. The hairs are horny threads derived from the epidermis and placed in pits which traverse the skin, frequently also the subcutaneous tissue. Each hair may be divided into a shaft, situated above the skin, and a root within the

^{*}Read before the interhospital conference held at the New York State Psychiatric Institute and Hospital, New York, N. Y., April 18, 1940.

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The root has at its lower end a knob-like expansion called the hair bulb into which is indented the papilla. The whole root is surrounded by the hair follicle which, with a few modifications, is a continuation of the epithelial and dermal portions of the skin. The hair itself may be divided into three portions, the medulla, the cortex and the cuticle. The medulla forms the central axis and consists of two or three layers of cubical cells. The protoplasm contains finely dispersed pigment, and the intercellular spaces generally contain air bubbles. The cortex makes up the main bulk of the hair and consists of several layers of long fusiform cells with atrophied nuclei. These layers have a laminated appearance. In colored hair, pigment granules are found in and between these cells. Occasionally there are also air bubbles in the intercellular spaces. The cuticle is composed of a single layer of cells. The hair follicle consists of inner and outer root sheaths derived from the epidermis and a connective tissue portion. The inner root sheath has three layers, the cuticle of the root sheath, Huxley's layer and Henle's layer. The cuticle approximates and is similar to the cuticle of the hair. Outside this is Huxley's layer, consisting of several rows of elongated cells. Henle's layer is a row of rectangular, flattened clear cells. The outer root sheath is a continuation of the stratum germinativum of the skin. rounding the epithelial follicle is a connective tissue portion derived from the dermal area of the skin. The bulbous portion of the hair root, surrounding the papilla, consists of a matrix of growing cells. The hair grows upward from the thickened base of the follicle.

The color of the hair is basically dependent upon the pigment diffused through it, although, as will be seen later, other factors play an important rôle. The origin of this pigment, melanin, was until recently a mystery. Karg, Kolliker and Ehrmann² believed that it originated from the hemoglobin of the blood and was transported to the skin by special cells (melanoblasts). Meirowsky,³ McDonaugh,⁴ Dyson⁵ and Kreibich⁶ considered the pigment to be independently produced in the epithelial cells themselves. This problem has been fairly well cleared up, however. In 1917, as well as in later publications, Bloch⁻,⁵ reported that when a piece of skin is treated with dioxyphenylalanine, or "dopa", certain cells are

darkly stained. He assumed that these cells must contain a theoretical enzyme, named by him "dopa oxydase", which reacted with dopa to give "dopa melanin". He believed that there must be normally a substance in the blood identical with, or similar to dopa, which he termed propigment, and that when this substance came into contact with cells containing the theoretical enzyme, true melanin was formed. This theory is borne out by the fact that the dopa reaction is marked in negro skin and absent in vitiligo and in albino animals. Dopa has subsequently been found to be related to protein breakdown products and to the amino acids. Thus, tyrosine, when mixed with the enzyme tyrosinase and shaken with air, turns first reddish then gradually becomes a dark brown color. indistinguishable from that of melanin. The reddish pigment appears to be an intermediary product in the chemical reaction. The related substance adrenalin produces the same result; we have all undoubtedly been chagrined to find the adrenalin in our emergency kits turning brown due to exposure and oxidation. A similar process takes place when a cut apple turns brown on exposure to air. It appears, therefore, that melanin pigment can form as a local chemical reaction in the tissues and presumably is not transported from other parts of the body. This is probably the case with the pigment in the hair and follicle.

Gray hair may occur in a great many instances, both normally and pathologically. The accompanying table shows the more usual conditions in which gray hair may occur. The most common type of gray hair encountered is that associated with senility. It is generally known that after middle age is reached varying degrees of graving may normally be expected. It is surprising, however, that despite the frequency of its occurrence very little is known of the pathology involved and textbooks rarely mention its pathogenesis. Since the condition is nearly universal, it is to be assumed that the process is similar to that occurring in other tissues as a result of the catabolic changes of old age. There is a gradual increase in the fibrous tissue of the skin and hair follicles, the cells assume degenerated forms, decrease in number, show vacuolation, abnormal staining reactions, and nuclear changes. Such changes are of course considered normal in advanced years and would adequately explain the failure in melanin formation in the follicle cells.

SENILE GRAYING OF HAIR

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Figure 1.

Showing section from scalp of an 88-year-old woman whose hair was gray except for a slight mixture of black. The follieles are extremely disrupted and appear atrophied. The connective tissue sheath is separated from the rest of the folliele. This pathology is present even in the one folliele in which some pigment is still present.



Figure 2.

Showing section from scalp of 72-year-old man with gray hair apparently entirely gray. Despite the apparent total graying of this man's hair, the section shows two pigmented follicles. There is little difference in the appearance of the pigmented from that of the unpigmented follicles.

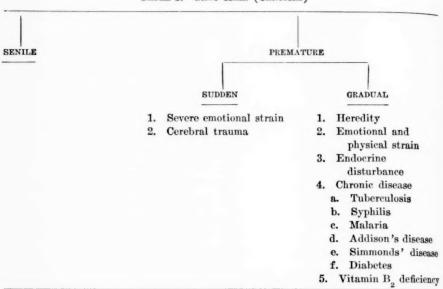


Why it is that some individuals begin to show hair changes at 40 while others in the seventies still have an abundant supply of pigmented hair is difficult to say, unless one falls back on the unsatisfactory and timeworn explanation of constitution.

That pathological cellular changes can frequently be demonstrated in the follicles of gray hair of older people is true, but not an invariable fact. Indeed fully as often we see a pigmented and a nonpigmented follicle next to each other and one would need to stretch his imagination sorely in order to discern differences in the cellular structures of the two. One does observe a tendency occasionally toward a diminution in the number of follicles per square field in sections of senile skin, which may be dependent on altered nutrition, but the fact that two follicles of apparently similar nutrition differ in their pigment content would tend to indicate that there may be other factors involved. (Figures 1 and 2.)

But let us for a moment leave senile graving and consider premature graying, which is of greater significance to us as psychiatrists. Under this heading let us examine the subject of sudden graving of hair. The literature abounds with stories of people who had suddenly turned gray. Thus, it is stated that Marie Antoinette turned gray the night before her execution. Those who deny the possibility of such an occurrence state that Marie had been gray for a long time but previously had had the facilities to disguise it: during her imprisonment she lacked the attention of hair-dressers and subsequently appeared gray.10 We have the story of King Henry IV,11 who, while troubled by the prospect of war, put his head in his hands to meditate on his sorrows; when he lifted his head, his mustache had grown white. Lytton Strachey, in his monograph on the death of Gordon in the siege of Khartoum, relates how the governor-general's hair quickly turned gray as a result of the intense suffering and hardships which he had undergone. Lorry, 11 in the eighteenth century, tells the famous story of the Spaniard who was condemned to death and then pardoned by King Ferdinand, for he had "grown white from fear" when he learned of the sentence. Parry,11 a physician in the army of India, gave witness to the fact that he saw the hair of a Bengalese native, who was taken as a prisoner before the British Authority, turn





completely gray within a period of a half hour. Similar examples can be quoted ad infinitum, but many authorities will continue to classify them in the realm of fairy tales. 10, 11, 12 Oesterlen, 14 for instance, after reciting reports of many cases of sudden graying concludes, however, that this does not occur and is unthinkable, that not a single case has been noticed by a scientist, that reports to that effect are ridiculous and due to inexact observation. These men agree that sudden graving is an impossibility. The hair itself is an inert, dead material, lacks a nerve or blood supply, and it is therefore impossible for any sudden change to occur in its melanin They further agree that since the hair grows approximately only about one centimeter a month, it would take a considerable period of time for gray hair to appear. Such reasoning appears logical, but can be shown to be faulty. In the first place, one rarely sees gray hair which is still pigmented at the distal end, a condition which would exist were graying a gradual process with the nonpigmented portion forcing out the pigmented portion. In the second place, we know that certain animals such as the ermine (mustela erminea) and the mountain hare (lepus variabilis) can change their furs to white rather quickly during the winter. Furthermore, although the previously quoted cases may be unsubstantiated, there are cases which even the most incredulous must accept. The writer is familiar with a man of about 50 years of age who turned completely gray within a period of two weeks following the accidental death of a son.

An interesting case is reported by Addinsell.¹⁶ A 22-year-old woman, while menstruating, witnessed the tragedy of a woman's throat being cut and the victim falling dead at her feet. Menstruation was immediately arrested, and the next morning all the hair on the right side of the pubis had turned white while the left side remained dark. Examination revealed complete absence of pigment on the right labium majus, and the inner side of the right thigh was bleached. Amenorrhea persisted for nine months, but the absence of pigment was permanent.

Jones¹⁷ reports a case with photographs of a 53-year-old paranoiac whose hair had, within a period of five weeks, turned from a flecking of gray to extreme white. A microscopic examination showed the hair shafts free from pigment and the outer parts appearing opaque and silvery. The cuticle was extremely thin, the fibrous layer atrophic, and the distal third of the hair completely infiltrated with minute air bubbles. Air was present also in the middle third. The medullary portion was smaller and more varicose than normal, the bulbs were small and atrophic and almost entirely free from the adherent root sheath. The author quotes the relation of hair to mental states by referring to the harsh dry hair of melancholias, the sebaceous hair of paretics, and the upstanding shock of hair of manics.

MacLeod¹⁸ reports the case of a robust man of 46 who, during an automobile accident on April 2, 1937, was thrown against the steering wheel of his car; at the same time, his forehead struck the windshield, temporarily stunning him. He did not feel the effects of the accident at once, but within a few days he became easily tired and felt out of sorts. In June, 1937, seven weeks after the accident, the skin of his forehead and chin showed mottled white patches, and the eyebrows had turned gray. These changes spread to the hands, scalp, penis and pubic region.

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Gowers¹⁹ reports the case of a man who had a traumatic meningeal hemorrhage over the left hemisphere. As a result of this, during the three days he lived following the injury, the right opposite half of his brown mustache and beard became blanched so as to be almost white. The hair of the scalp was not affected. The change was watched carefully during the life and death of the patient. The writer believed that the disordered innervation so changed the secretion of the root of the hair as to produce a material capable of ascending the hairs and discharging the pigment. Nolan D. C. Lewis²⁰ relates, from his personal experience, the case of a man who turned gray overnight following a severe emotional shock. On the previous day this man, Dr. Lewis and several other bystanders barely escaped death when a wagon containing a large quantity of dynamite was prevented from turning over by the quick action of the former.

It appears, therefore, that regardless of our skepticism, we must concede that at times it is possible for hair to turn gray more or less rapidly. Being acquainted with the structure of the hair and aware of the apparent impossibility for pigment to leave it, we must look for other explanations for the phenomenon. There are several possibilities. It may well be that the interior of the hair is not as impervious as we previously believed. We know that dark hair exposed to sunlight is easily oxidized and bleached. Is it possible that under emotional strain, or following nerve injuries, substances having a reducing or oxidizing effect may form in the body capable of ascending the hair shaft? Another possibility is that provided by Metchnikoff²¹ who believed that the disappearance of hair pigment was due to special pigment phagocytes (pigmentophages) which originated from the cells of the medulla of the hair and were able to remove pigment rapidly from the hair shaft to the surrounding skin. The theory finds support in the fact that graying of hair is frequently accompanied by a darkening of the surrounding skin. However, at times the reverse is true, and besides, the presence of such cells has never been demonstrated. Furthermore, it is not essential for gray hair to lack pigment. Pfaff²² examined gray hair and found pigment present, from which he concluded that the apparent whiteness is due to a thickening and opacity of the horny layer. Other authors have found that gray en-

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hair owes its color to the presence of air bubbles which reflect light, resulting in a white color. These air bubbles have been definitely demonstrated in the seasonal whitening of the hair of animals.15 Their formation in the hair shaft is explained by some²³ as follows, remembering of course the highly theoretical nature of such an explanation: The hair is not hollow, but nevertheless contains intercellular spaces permeated with fluid secretions. Because the fluids are confined to a small space, they are under great tension. Shock, rage and fear cause the appearance in the skin of histamine-like substances which reduce the surface tension and produce a result in the hair similar to the process in "bends", that is, the liberation of the dissolved gases, nitrogen and oxygen. Light striking such a hair consequently will give a gray appearance, despite the fact that pigment may still be present. The writer must admit that in numerous specimens of gray hair examined he has been unable to convince himself of the presence of air bubbles, but since such observations have not been based on the examination of gray hair of sudden origin, they may be of little value.

Many people begin to gray prematurely, and because a tendency has been noted for the condition to occur in different members of a family as well as in successive generations, it is often attributed to heredity. Thus, Fitch²⁴ reports the inheritance of a white forelock through five successive generations. Hollander and Schmitt²⁵ report similarly a father and two daughters showing identical gray forelocks and vitiliginous areas. Kolew²⁶ describes the case of a 12-year-old girl whose hair had been turning gray for about two years. The writer believes this instance to have resulted from the germ-plasm exhaustion of the parents, as the father was 60 and the mother 50 years of age at the time of the child's conception.

Explaining any physiopathological phenomenon on the basis of hereditary or prenatal influences is extremely unsatisfactory. The terms are only descriptive of our ignorance of the direct cause. We inherit not gray hair but the chemical, physiological or endocrinological constitution for such a condition. It has long been suspected that the endocrine glands probably play an important rôle in pigmentary disturbances. This might apply even to the grayness of senility, occurring at a period of life when there is undoubtedly a slowing-down and exhaustion of the endocrine as well

as other physiological functions. It is interesting that many endocrine disturbances show prominent pigmentary changes. The premature graving of hair in Addison's disease is well known 27 This disease has also for one of its chief symptoms the increase in melanin pigment in the skin and mucous membranes. condition is characterized by a destruction of the adrenal medulla and reduction in the formation of adrenalin, we can explain the increased melanin by the fact that substances which normally would go into the making of adrenalin are now free to form pigment by the chemical reaction previously described. But this does not explain the lack of melanin in the hair. Plummer and Jaeger²⁸ report a case of Simmonds' disease, due to a glioblastoma of the hypothalamus, in which both the skin and the hair turned lighter. The occurrence of gray hair as a result of hyperthyroidism has been reported, and the frequency of pigmentary changes accompanying pregnancy, apparently due to estrogenic activity, is also well known. The existence of a relationship between the androgens and pigmentation has been demonstrated by Hamilton and Robert.^{29, 30} Hamilton and his group³¹ report pigmentation of the skin in surgically castrated males following treatment with testosterone propionate. Hamblen and Cuyler³² not only verified this work but actually showed, by colorimetric methods, that the urinary androgenic titer of female blondes is definitely lower than that of brunettes. There remains little doubt, therefore, that the endocrine system is in some way implicated in the depigmentation of hair. its exact rôle being uncertain. We do know, however, that the various glands of internal secretion are intimately interrelated and that a defect in one may be clouded by the symptoms resulting from the overcompensation of one of the other glands.

Lately³³ some evidence has been brought forth implicating also

vitamin B₂ in hair pigmentation.

There is a close relationship not only between the various glands of internal secretion but also between them and the vegetative nervous system and, in turn, psychic influences. This interrelationship is so definite that many of the so-called endocrine disturbances can be duplicated artificially by stimulating the sympathetic nervous system, or by psychic disturbances. We no longer look at Graves' disease as a local thyroid involvement, but as a psy-

choneurosomatic syndrome. The aggravation and indeed the first appearance of this condition can be traced frequently to some psychic-emotional shock or conflict.

Let us, therefore, examine more closely the relationship of hair to the psyche. In a previous communication,34 the writer has traced the symbolic importance of hair as related to taboo, the concept of strength, beauty, mourning, and the castration complex. It appears that Man, throughout the ages, in his popular customs, myths, ceremonials and other productions, has employed the hair as a phallic symbol. The strict taboo connected with hair-cutting among various peoples bespeaks a strong psychic evaluation. The myth of Samson, whose potency resided in his hair and who became powerless when his locks were shorn, is interesting from this point of view. This myth is repeated with a few modifications in the fables and mythologies throughout the world. Without dwelling too long on this subject in the present paper, it suffices to say that we have frequently analyzed a connection between the plucking-out of hair by mental patients and some psychosexual problem, particularly the castration complex. A similar relationship can be demonstrated in many of our so-called normal customs, habits and hair styles. We may, for instance, trace the hair styles of women. the short hair of men, the clipping of the hair of a newly-married Orthodox Jewish woman, as well as the analogous ceremonials of clipping of the hair of nuns and priests, to unconscious motivations.

The origin of the hair as a phallic symbol is difficult to explain except that it is so intimately related to the head, which has since antiquity been considered as either sacred or taboo because of its being inhabited by a spirit. Furthermore, the concomitance of hair growth on certain parts of the body with sexual development is evident and may have been somewhat responsible for this cathexis. Similarly, unconsciously as well as on a conscious level, we have always looked upon the graying of hair as being correlated with old age and the accompanying somatosexual decadence. It is probable, therefore, that a younger person might unconsciously utilize this means in solving severe psychosexual conflicts. Sudden or premature graying of hair might, under the circumstances, imply the resolution of a castration complex, unconscious suicidal

ideas, the identification with and subsequent introjection of a parent, etc., depending on the psychic constellation or complex of the particular individual. Kann³⁵ reports the case of a woman of 40 who turned gray in which the occurrence could be fairly definitely attributed to a psychosexual maladjustment. Groddeck³⁵ mentioned a case of premature graying of the hair which he considered due to an unconscious tendency to simulate a dead father and to take the latter's place whenever dealing with the mother. Abraham³⁵ relates that he was much affected by the death of his father: the most remarkable phenomenon was the occurrence of sudden graying of capital hair, the color of which returned within a period of a few months. He himself believed that the phenomenon was the result of the introjection of his father.

DISCUSSION

An attempt has been made to approach the subject of canities from various viewpoints: first, the somatopathological aspect, including a discussion of cellular and pigmentary changes, as well as general structural modifications; second, the chemophysiological aspect, with the possible chemical reactions which may be concerned in the physiology of pigmentation; third, the endocrinological aspect, with evidence presented of the occurrence of gray hair with disturbances in the various glands of internal secretion; fourth, consideration of the influence of the vegetative nervous system; and fifth, the psychoanalytical approach. These different viewpoints may at first appear to be unrelated. On the other hand, it would be fatuous to speak of bodily changes resulting from psychic disturbances unless one presumed thereby the presence of chemical, endocrinological, physiological, and vegetative nervous system activities, which were set in motion by such psychic stimulation. Where does the coordination of all these factors take place? The question cannot be definitely answered as yet. In recent years a great deal of work has been done on the hypothalamus; there is strong evidence to indicate that it regulates endocrine functions, serves as a center for emotional and psychic expressions,

and integrates the activities of the autonomic nervous system.³⁶ We cannot express our emotions, therefore, without the accompanying vegetative and endocrinological changes. It is highly probable that the endocrine glands may function at a certain level even when deprived of hypothalamic control, but it appears that the latter is necessary in emergencies, that is, when a sudden increased endocrine response is essential.

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The exact chemophysiological mechanism responsible for sudden or premature graying of hair is difficult to determine. More than one mechanism may be involved. In the case of sudden graying, there is a strong possibility that the process is analogous to that occurring in seasonal animals, that is, the production of gaseous bubbles which ascend the hair shaft and produce a reflection of light. In premature graying, where a sufficient length of time has elapsed, an actual absence of color is the rule. Whether this loss of color is due to an in situ reduction or oxidation of the melanin, to reducing agents, to a removal of the pigment present, or to a failure of production of new pigment, is a problem for future investigation. Cannon³⁷ has demonstrated that the adrenalin-like response occurring during emotion is indistinguishable from that occurring during sympathetic stimulation. We have previously referred to the probable importance of adrenalin-like substances in the dopa reaction in melanin formation. It may be postulated, therefore, that with longstanding fear and psychic conflicts, the demand for adrenalin production may be so excessive as to diminish the elements essential in melanin formation. As the writer's experience has been limited practically to premature graying occurring in psychotic and psychoneurotic states, it would be unfair to attempt any correlation of the personality and psychic backgrounds accompanying such graving. It would be interesting to study apparently normal individuals with premature graying from such a viewpoint, including an evaluation of the psyche, endocrine balance, and the vegetative nervous system. Such an investigation may provide us with a clue for a future therapeutic attack on canities.

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THE ROLE OF ALLERGY IN NEUROPSYCHIATRY*

BY T. WOOD CLARKE, M. D.

Since the discovery of protein hypersensitivity as a cause of disease in man and the application of the term "allergy" to the phenomenon of the reaction of the sensitized tissues to contact with specific proteins, the work of the allergist each year has attained broader scope, coming into closer contact with numerous branches of medicine.

The internist must give consideration to allergy in treating asthma, recurrent bronchitis, chronic gastric diseases and mucous colitis. The rhinologist meets allergy in his cases of seasonal and perennial hay fever, chronic rhinorrhea and nasal polyps. The dermatologist who neglects to consider the allergic etiology of eczema, urticaria and angioneurotic edema is a generation behind the times. The orthopedist must think of the possible allergic background in cases of both acute and chronic arthritis. It is the writer's present purpose to discuss wherein the allergist enters into the field of the neuropsychiatrist.

When the tissue of an allergic patient comes in contact with the specific protein to which it is sensitized, a reaction or shock occurs. This results in local edema, spasm of a smooth muscle, or hyperactivity of glandular secretion. When the reaction occurs within the cranial cavity, the localized edema may increase intracranial pressure and simulate brain tumor, or the local anemia may give rise to various transient neurologic symptoms.

The recognized symptoms of increased intracranial pressure are headache, vomiting, dizziness, symptoms referable to pressure on the optic nerve, convulsions, paralysis, and psychosis. Any of these may be produced by allergic shock.

Allergic reactions occur typically in periodic attacks, between which the patient seems to be in perfect health. This is perhaps best seen in asthma and in angioneurotic edema. Migraine, the cause of which has previously been a mystery, also fulfills this requirement. Periodic and sudden in onset, it is characterized by

^{*}Read before the interhospital conference held at the Utica State Hospital, Utica, N. Y., April 26, 1940.

severe local headache, usually by protracted vomiting and occasionally by convulsions. Accompanying the attacks are eye symptoms (scotomata and transient amblyopia). All these symptoms suggest increased intracranial pressure, and can be adequately explained on the basis of a sudden angioneurotic edema of the meninges or brain substance. When the brain has been exposed during a migraine attack, it has been found to be edematous. It is now 10 years since Vaughan¹ demonstrated conclusively that many cases of migraine were of allergic origin. (Since then certain allergists have gone so far as to say that all migraine is allergic.) In such cases, as soon as the specific allergen is ascertained and removed from the diet or the environment, the attacks disappear. Headaches can be reproduced at will by again submitting the patient to the offending protein.

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Of particular interest to the neurologist is the syndrome known as Ménière's disease, or vestibular vertigo, characterized by profound and prolonged dizziness with or without tinnitus, and sometimes associated with prostration, vomiting, or even convulsions. While this distressing disease results usually from a disorder of the semicircular canals or of the central nervous system (manifested in hemorrhage, tumor or syphilis), a symptom complex indistinguishable therefrom may be caused by allergy. Various authors have reported conditions of this sort provoked by allergens such as milk, egg, apple, orris root, horse or dog dander, and completely relieved by the elimination of the offending material.

One such case came under the writer's care three years ago.

A physician 48 years of age had carried on an active practice for 20 years. He had always been in perfect health except for fall hay fever, from which he had suffered for 20 years. During the previous two years he had frequently experienced a feeling of drowsiness, with lack of ambition in the morning and at times abdominal distress suggesting gastric ulcer. In March, 1937 he began to suffer from dizziness, most marked in the morning and aggravated by sudden turning of the head. The symptom increased in severity until he had difficulty in driving his car and dreaded entering the operating room for fear he would be unable to complete an operation. The best medical advice available had been unable to determine the cause of his unfortunate condition or to give him any relief. In June, 1937, when, fearing brain tumor, he was planning to go either to the Johns Hopkins Hospital or to the Mayo Clinic, he was re-

ferred to the writer to see if his symptoms might possibly be due to an allergic condition.

A series of about 200 skin tests revealed strong sensitivity to the fall pollens, to barley, buckwheat, corn, flaxseed, banana, asparagus, beet, onion, parsnip, potato, spinach, string bean, tomato and turnip, and to kapok, orris root, Pyrethrum and tobacco. His diet was arranged, environmental irritants were eliminated, and smoking was forbidden. Within a few days the doctor's dizziness disappeared, his energy returned, and he is again carrying on his active practice without fear or anxiety. These results show that the Ménière's syndrome, which nearly caused our confrère's retirement, was the result of cerebral allergy.

The etiology of infantile convulsions, occurring in the absence of fever or disorder of the central nervous system, has long been a puzzle to the medical profession. Teething, indigestion, overfeeding and worms have been cited as underlying factors. This subject has been but slightly touched upon in the literature on allergy and no systematic allergic study has been made. Nevertheless, as far back as 1921 Thompson² in a study of 200 cases of infantile convulsions stated that they were due usually to "poisoning" by milk, cereals or eggs—the foods which most often produce allergic reaction. The writer's observations would tend to indicate that at least a substantial number of cases of infantile convulsions are the result of allergic reactions in the central nervous system.

Four years ago a child 23 months of age was brought to the writer with a history of convulsions for two months occurring several times a day. Physical examination failed to explain the convulsions. Intestinal parasites were ruled out by a therapeutic test. Skin tests, however, gave positive reactions to apple, date, beef, celery, spinach, dog hair, feathers, flaxseed and cotton. During the two weeks in the hospital, while the tests were being made, the child experienced from three to 10 convulsions a day. With the completion of the tests, the removal of cotton and feathers from the environment, and the elimination of the offending proteins from the diet, the convulsions ceased. The child remained free from convulsions during the next 10 days, for which period it remained under observation at the hospital.

In 1922 Ward,³ reporting two cases of epilepsy caused by food allergy, propounded the theory that epilepsy is as much a manifestation of allergy as is asthma. The next year Howell⁴ reported

14 epileptics showing food sensitivity, whose attacks could be prevented or produced by food manipulation. The same year Wallis, Nicoll and Craig⁵ found evidence of allergic sensitivity in 46 of 122 psychotic epileptics studied; 14 of those who gave positive skin reactions were cured. In 1927 Ward and Patterson,⁶ in a study of 1,000 epileptics, obtained positive skin tests for 48 per cent. Since then many scattered reports have appeared of isolated cases, or of small series of epileptics, showing definite evidence of allergic etiology.

During the past 10 years the writer has examined numerous cases of epilepsy from an allergic standpoint. Results have not been as striking as some of those previously reported, perhaps because most of these were cases of long standing in which marked cerebral degeneration had taken place. However, they indicated conclusively that some cases of epilepsy are characterized by definite allergic etiology. If this is discovered early enough, favorable results may be obtained. Following are a few examples:

M. F., 10 years of age, was referred to the writer in 1931 for pediatric treatment, having been diagnosed as an epileptic. The family history was not significant; her father was a dairy farmer. She had suffered from asthma since infancy. The onset of her convulsions came at the age of six years. The epileptic attacks had increased in frequency for four years, until they were occurring at an average of twice a week. Although then unfamiliar with research which had been made on the relation of allergy to epilepsy, the writer suggested that if the asthma could be cured, the epileptic attacks might become less frequent. No hopes were offered for a cure of the epilepsy. With approval of the parents, 80 skin tests were made by the scratch method with the following results: cattle hair + + +, cottonseed + + + +, radish + +, and cheese \pm .

Cotton was removed from the child's environment; radishes, cheese and salad oils were eliminated from her diet. As her home conditions precluded the avoidance of the hair and dander of cattle, weekly inoculations of cattle hair extract were begun on May 19, 1931 with a dose of 0.1 c.c. of 1:100,000 dilution. These were continued weekly with increasing doses, the last dose, 0.9 c.c. of a 1:500 dilution, being given eight months later.

The results were surprising. As the dose of cattle hair increased, not only were the asthmatic attacks relieved, but the epileptic seizures became less and less frequent, ceasing entirely six months after treatment was instituted. A few weeks ago, this patient, now married, brought her child

to the writer. She stated that she had had no asthma since her treatment in 1932; except for an eclamptic attack when her child was born, she had experienced no convulsions.

Another striking result was seen in the case of B. W., born in 1916. She was an only child, delivered by caesarean section, nursed for four months, then given cow's milk and dextrimaltose. When 18 months old, she developed facial eczema. She refused to eat eggs. She had numerous colds and stomach upsets, frequent attacks of croup, and at five years of age contracted pneumonia. Since the age of three she had suffered from hay fever every fall, sometimes followed by asthma.

Since four, she had experienced digestive upsets and constipation, with recurrent mucous colitis. Her epileptic attacks dated from the age of 10. During the succeeding nine years, she had convulsions varying from once a month to once every three months. They occurred invariably in bed. She had once fallen out of bed and bitten her tongue. These difficulties had rendered her a chronic invalid.

One hundred and eighty-six skin tests were made by the scratch method with the following results: +++++ for goldenrod, ++++ for banana and asparagus, +++ for giant and short ragweed, dahlia, dandelion, cabbage, corn, garlic, onion and potato, and ++ for orris root. Pyrethrum, to-bacco, coffee, buckwheat, and mugwort and sunflower pollen.

A diet free of the above-mentioned foods was ordered, and on March 4, 1933, inoculations with giant and short ragweed, goldenrod and dandelion were begun and continued until August.

Following this treatment, the patient experienced her first autumn free from hay fever in 15 years, and her intestinal condition was much improved. During the next 14 months she had only a mild convulsion, and this after a two-day automobile trip on which she ate at restaurants without adhering to her dietary regimen. She said that for the first time in her life she considered herself to be well.

The writer recently saw a trained nurse, 22 years old, the daughter of a physician. Her father suffers from migraine and urticaria. Her family and personal histories are otherwise immaterial. For the past seven years she has suffered from attacks of petit mal, which have reached a frequency of five to seven a day. In June, 1937 and January and March, 1938, she had major epileptic attacks.

Physical examination gave no cause for the symptoms. One hundred and sixty-five skin tests were negative except for a suspicious reaction to cheese and a delayed reaction to Staphylococcus pyogenes aureus. On May 1, Rowe's elimination diets, which contain no egg, milk or wheat, were

initiated. In the next two weeks on diet 1 she had seven attacks, all occurring during two days of examinations and dietary lapses. For two weeks on diet 2 she experienced no attacks. On diet 3 she suffered 11 attacks on breaking her diet. Two weeks more with strict observation of diet 3 resulted in an absence of attacks; likewise the next two weeks, when she had a mixture of the three diets.

At this point wheat was added to her diet, and during the next two weeks she suffered 17 attacks of petit mal. Two more weeks on the basic diets without wheat showed only two attacks, but when milk was added she had 14 petit mal and one grand mal attack in one day. Withdrawal of the milk improved the condition promptly and the addition of egg precipitated no attacks. The patient was then put through a course of oral desensitization to milk, and when last seen she was drinking milk freely without experiencing attacks. Desensitization to wheat was to be undertaken, when she married and changed residence.

It is probable that the syndrome we know as epilepsy is a manifestation of various conditions, one of which may be allergy. Kennedy^s has demonstrated that during an epileptic convulsion, as in migraine, there is marked cerebral edema. It is highly improbable that an allergic study will relieve all cases of epilepsy. If, however, even 10 per cent of the sufferers from this dire affliction can be cured it will be a source of rejoicing to thousands of unfortunate human beings.

In 1929 Kennedy⁹ reported a series of cases of paralysis of the arms following tetanus serum sickness. The muscles most commonly involved were the deltoids. Reactions of degeneration appeared and the paralysis lasted several weeks, but it ended in complete recovery. During the next few years several other authors reported similar cases, and in 1933 Doyle¹⁰ collected 49 cases from the literature. Opinions differ whether the lesion in these cases is an urticaria of the cerebrum or an edema of the sheaths of the peripheral nerves. These anaphylactic reactions to serum are of course aggravated cases of allergic shock.

Other authors have reported incidents in allergic cases (either isolated or associated with asthma or migraine) where attacks of local anesthesia or paresthesia of the hands occurred followed by temporary paralysis. In these cases the symptoms were removed promptly by the administration of adrenalin and could be pre-

vented by eliminating from the diet the foods to which the patient was sensitive.

The mental effects of allergy have received little attention, although nervous symptoms are so common in association with the allergic diseases that until recently asthma, urticaria, angioneurotic edema and migraine were thought to be primarily diseases of the nervous system.

It is a matter of common experience that the asthmatic child, though amenable normally, becomes during an asthmatic seizure irritable and disagreeable in the extreme. This nervous excitability is usually considered to result from the discomfort of the attack "getting on the child's nerves". This to a considerable extent may be true, but numerous cases have been reported by Shannon¹¹ and other allergists in which "high-strung", "nervous", unruly and disagreeable children who showed none of the accepted manifestations of allergy, have been found to be hypersensitive to certain foods—most commonly wheat. When the offending proteins are removed from the diet, the mental attitudes of these children toward life change radically; within a few weeks the spoiled, irritable child has become happy, contented, and friendly. Insomnia, also, has been overcome in allergic patients by diet adjustment.

Although it has been demonstrated many times that allergic shock can cause mental depression, bewilderment and even active delirium, the psychiatrist has almost entirely overlooked the possibility of allergic background in some of the recurrent types of psychoses. It is to be hoped that in the near future some psychiatrist may be aroused to the advisability of making a thorough allergic study of the different types of psychosis, especially those recurring at regular intervals. Results may be negative, but the possibilities are tremendous. If all psychotic patients having allergic conditions could be collected in one institution and facilities provided for a thorough allergic study and dietary regimen, much might be accomplished. The writer was deeply interested in the case of a woman who had asthma provoked by dog and cattle hair. She experienced frequently recurrent episodes of mental confusion which she herself associated with her asthmatic attacks. After admis-

sion to the hospital, she was much improved but had one serious mental relapse shortly after a supervisor brought a pet dog on the ward. Such incidents deserve careful study.

Osler was in the habit of saying that syphilis was a disease which could simulate any other disease in man, and that in making a diagnosis it should be considered no matter how remote the possibility appeared. The same may now be said of allergy. Allergists do not claim that all those suffering from paralysis, headache, vertigo or convulsions are allergic. They do emphasize that in all these conditions allergy may be an underlying cause, and in searching for the etiology of all obscure nervous conditions allergic factors should be taken into consideration. Especially when there is a family or personal history of allergic manifestations, the patient should be given the opportunity of a scientific allergic investigation.

SUMMARY

1. Allergic reactions consist of local edema, smooth muscle contraction and glandular hypersecretion.

2. If the reaction occurs within the cranial cavity, it may produce symptoms simulating brain tumor or cerebral anemia.

3. The result may be headache, vomiting, dizziness, convulsions, transient paralysis, or other neurological manifestations.

4. Some cases diagnosed migraine, cyclic vomiting, Ménière's syndrome and epilepsy are actually the results of allergic reactions in the central nervous system.

5. If the allergic causes are determined in these cases, prompt cures result.

6. Allergic reactions in the central nervous system may produce psychic manifestations.

7. Thorough allergic study of cases of periodic psychosis may add to our knowledge of the etiology of such conditions.

8. When patients with recurring psychoses present a family or personal history of allergic disease, they should be given a thorough investigation of their allergic idiosyncrasies followed by the appropriate treatment indicated thereby.

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HABITUS AND PERSONALITY IN MENTAL DISEASE ASSOCIATED WITH ORGANIC DISEASE

A Comparative Study*

BY EUGENE DAVIDOFF, M. D., GERALD L. GOODSTONE, M. D., AND EDWARD C. REIFENSTEIN, JR., M. D.

This paper presents an analysis of 100 patients admitted consecutively to the Syracuse Psychopathic Hospital in whom a diagnosis was made of psychosis associated with an organic disorder. These cases consisted for the greater part of psychoses with acute infectious disease, with postinfectious states, with somatic disease, and with toxic, metabolic or endocrine disturbance. Since the type of patient admitted to this hospital usually manifests early acute or subacute mental illness, those with degenerative disease such as arteriosclerosis comprised but a small percentage of the cases. As far as possible, those patients were excluded who had developed psychoses previous to the onset of their organic illness.

All the patients admitted to the psychopathic hospital naturally reacted poorly to their illness and adjusted poorly to the home or to the general hospital regimen. These included, therefore, the excessively aggressive or submissive and the confused or delirious reaction-types. During hospitalization these patients were either dull, apathetic, self-absorbed and depressed, or suicidal, agitated, destructive, assaultive, impulsive, homicidal, delusional, hallucina-

tory, confused and grossly delirious.

It is interesting to note that in many of these cases the previous personality defects were so severe that a differential diagnosis between functional psychosis and organic psychosis was established with difficulty. After the acute phase of the illness had subsided, these patients generally showed some improvement mentally. However, favorable adjustment in the hospital was delayed in most cases because the defects in personality became more evident.

PERSONALITY

Ninety-one per cent of the cases manifested poorly integrated prepsychotic personalities. These patients exhibited mental defi-

^{*}Read before the interhospital conference held at the Utica State Hospital, Utica, N. Y., April 26, 1940.

ciency, simple adult maladjustment, psychopathic personality, psychoneuroses; depressive, hypomanic, schizoid or paranoid tendencies. The patient's reaction to his illness was influenced more by his personality defects than by the severity of the disease process.

The 9 per cent who were well integrated presented the following factors alone or in combination: (1) serious organic illness or severe brain lesions, and exhaustive or deficiency states such as avitaminosis and inanition; (2) psychic trauma occurring during the course of the illness; (3) unfavorable social and economic situations. In this last group, unpleasant family relationships and adverse home conditions may act in combination with the physical illness to produce the symptomatology.

In the confused delirious reactions of more than transitory nature, many of the previous personality traits or repressed tendencies were released. In some instances, the delirium was largely the result of organic stimulation, of depression of cortical and subcortical areas, or both. For the most part, however, the previous personality did play an important part in determining the type of symptoms observed.

Low delirium with muttering was found usually in persons of asthenic and dysplastic habitus whose previous personality was described as schizoid or depressed. The excited noisy deliria occurred in the following types of personality: (1) the cyclothymic or hypomanic type, usually of pyknic habitus, who developed an occupational delirium with visual hallucinations and photophobia; (2) the paranoid "eccentric" type, usually of asthenic habitus, who developed ideas of reference and experienced auditory hallucinations; and (3) the mixed type, who showed reactions referable to both cyclothymic and schizoid tendencies in the personality.

HABITUS

The patients were grouped into asthenic, dysplastic and pyknic types, using the method of Kretschmer, since his classification is the most widely accepted. The data are indicated in the table (column 2). Habitus was conceived as a reaction of the body to the total processes taking place within the individual. In the presence of physical disease and poorly integrated personality, the

catabolic process predominates. Those with asthenic and dysplastic habitus exceeded in number those with pyknic habitus.

Ninety-seven per cent of those with dysplastic habitus and 91 per cent of those with pyknic habitus manifested poorly integrated prepsychotic personalities, while a relatively lower proportion of those with pyknic habitus (79 per cent) had personality defects. The individuals with pyknic habitus appeared to possess greater compensatory powers and more plasticity than those with either the asthenic or the dysplastic habitus.

Most of those with asthenic and dysplastic habitus presented schizoid traits. Some of those with pyknic habitus expressed paranoid ideas.

CASE REPORTS

The following abstracts illustrate in sequence the increasing difficulties which may be encountered in differentiating the organic cases from those with functional mental illness.

Case 1. C. C. was a female, age 54 years, of asthenic habitus; diagnosis: psychosis with infectious disease, lobar pneumonia.

She was married at the age of 20 and divorced her husband after 10 years of married life, because he was abusive and deserted her. She married her present husband at the age of 42. The patient was rigid, shy, submissive and overconscientious. Occasionally she became irritable and demanding, particularly when she thought she was abused. Her range of interest was circumscribed, being centered upon her home and husband. An exceedingly devout Catholic, she felt guilty about her divorce and her withdrawal from her church. Two days prior to admission, she became irrational and assaultive. On the ward she appeared weak, was restless and depressed, and manifested paranoid delusions with auditory and visual hallucinations. She was underproductive, and muttered. Physical examination showed the characteristic signs of lobar pneumonia: temperature 104° F.; white blood cell count 22,000; a sputum examination revealed type VIII pneumococcus; the blood culture was positive. The patient continued in this delirium for two weeks, during which time she received sulfapyridine. When her temperature and cell count returned to normal, she became rational but showed retardation and was somewhat self-absorbed. She continued to improve both mentally and physically. After five weeks of hospitalization, she was discharged as recovered.

Case 2. A. C. was a male, age 22 years, of pyknic body type; diagnosis: psychosis with subacute bacterial endocarditis.

The patient had never been a healthy child and was obliged to restrict his activities. He was unstable, "moody", and had tantrums. Showing latent homosexual traits, he took no interest in the opposite sex. He hated his father. He would leave home for long periods without saving where he had been. In 1935, at the age of 17, he was admitted to the hospital charged by his father with waywardness. He was found to be without psychosis, and foster home placement was advised. He returned to his parental abode after two years. On readmission to the hospital in 1939, he was untidy, unkempt, bedridden, overproductive, expressing flight-of-ideas and circumstantiality. His mood was cyclothymic, He experienced visual and auditory hallucinations, and expressed delusions of persecution with reference to his family and to hospital employees. He attempted suicide several times on the ward and on one occasion made homosexual advances toward a male attendant. Physical examination revealed numerous petechiæ, a skin of café-au-lait color, cyanotic hands with clubbing of the fingers, and a heart which was enlarged to the left with a loud systolic murmur at the apex. The roentgenogram showed widening of the heart shadow; the electrocardiogram revealed sinus tachycardia and an inverted T3 wave. The blood culture yielded streptococcus viradens. Urine analysis showed a positive albumin and red blood cells. There was no change in his behavior, and his physical condition became progressively worse. The patient died 12 days after admission to the hospital.

Case 3. C. A. was a female, age 62 years, of pyknic habitus; diagnosis: psychosis with cerebral arteriosclerosis, complicated by pernicious anemia.

The patient was described as emotionally unstable,—excitable and prone to sharp mood fluctuations. She was ambitious and worked at a high pitch. She was stubborn, determined to have her

own way. She deliberately restricted her activities to her farm, taking little part in the community activities. She "drove" her husband and children.

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In December, 1937, it was discovered that she presented a clinical picture of pernicious anemia. The onset was insidious and probably of two years duration. The blood picture revealed the following: hemoglobin 25 per cent; red blood corpuscles 9,000,000; white blood corpuscles 5,000; color index 1.25. Macrocytosis was present. In addition, she had general arteriosclerosis and arteriosclerotic heart disease.

She received treatment until January 24, 1940, when her hemoglobin rose to 82 per cent and the red cells to 4,000,000. Although improved physically, early in the fall of 1939 she passed through periods of confusion and irritability. On February 20, 1940, she became distressingly confused and told her husband to put the knives away as she was "going crazy". Later she thought her husband was dead, made preparations for his funeral, and became suicidal. She was admitted to the Syracuse Psychopathic Hospital on February 28, 1940. In addition to her confusion she exhibited bizarre delusions, auditory hallucinations, and excited behavior.

The blood picture was similar to the one obtained in January. Arteriosclerosis was present. During her stay in the hospital, her sensorium became clear at times but her manic-like behavior and delusions continued. She was committed to a State hospital.

Case 4. A. P. was a female, age 17 years, of dysplastic habitus; diagnosis: psychosis with endocrine disorder, toxic goiter.

As a child the patient was shy, avoided company, did not make friends easily. After puberty, she showed no interest in the opposite sex and established a close relation with two other girls of the same age. Her range of interest and activities were circumscribed, and she rarely left her home. She was jealous of her sister, feared her father, and felt that her mother was unsympathetic.

About two years ago, it was discovered that she had a toxic goiter. Eight months prior to admission she developed a paranoid attitude toward her family, as a result of which she spent much time away from home, at times staying out all night. Her family learned directly that she was going out with older men and that

she was sexually promiscuous. She became agitated, assaultive, suicidal, and was admitted to this hospital on a court order, charged with disorderly conduct.

Physical examination showed exophthalmos, tachycardia, tremor of fingers and marked vasomotor phenomena; the basal metabolic rate was plus 31. On the ward she was uncooperative, depressed and fearful. She experienced delusions, also auditory and visual hallucinations, of a persecutory nature. Lugol's solution was administered, but the patient was taken home against advice before any definite effect could be obtained. This patient was heard from some time later and was making a good adjustment following treatment for her hyperthyroid condition. Two members of the staff considered her case one of hebephrenic dementia præcox.

Case 5. T. R. was a female, age 28 years, of asthenic body type; diagnosis: dementia præcox, paranoid type, with osteomyelitis.

The family history was negative except that the patient's father was described as "peculiar". She was a healthy child, having suffered only the common diseases of childhood. In 1931, following a fall, it was found that she had osteomyelitis of the clavicle, for which she underwent operation. In 1932, she developed osteomyelitis of the right elbow, which left her with an ankylosed joint. The patient has always been withdrawn, having few interests and partaking in little recreation. On her admission to the hospital, she expressed ideas of reference, delusions of persecution, auditory hallucinations and grandiose ideas. She was now elated, now apathetic and mute. The physical examination revealed localized redness, swelling and tenderness in the region of the right elbow. Several days later there was a fluctuant mass in this region. Her temperature was 102° F., pulse 100. The osteomyelitic process responded to treatment, but she showed only slight improvement in her mental status and was therefore committed.

COMPARISON OF PATIENTS IN A GENERAL HOSPITAL WITH THOSE
HAVING PHYSICAL DISEASES IN A MENTAL HOSPITAL

The defects in integration were comparable to those in the more severely neurotic or psychotic group admitted to the general hospital.* However, in general, more pronounced, prolonged, and more definitely deviate reaction patterns were observed. The patient with physical illness in the psychopathic hospital demonstrated marked personality defects with more accentuated unhealthy traits, a greater lack of balance, and fewer compensatory characteristics. This type of patient usually evidenced less ability to evaluate himself or his personality than the patient in the general hospital, and his story was less reliable.

(1) All the patients in the psychopathic hospital series adjusted poorly to the ward routine or in the home, as compared with 44 per cent in the general hospital series. In the former group, the degree of maladjustment was greater since all showed severe psychoneurotic or psychotic manifestations.

(2) Ninety-one per cent of the cases in the psychopathic hospital series, as compared with 38 per cent in the general hospital series, showed poorly integrated prepsychotic personalities. The degree of malintegration was greater in the former group.

(3) There were 34 patients with dysplastic habitus in the psychopathic hospital series, as compared with 12 in the general hospital series. This may be accounted for to some extent by the fact that many of the cases in the psychopathic hospital series were of psychoses associated with endocrine disorders. There were 34 patients with pyknic habitus in the general hospital series, 14 in the psychopathic hospital series. The number of those with asthenic habitus in the two groups was approximately the same: 54 and 52, respectively.

(4) Ninety-one per cent of those with asthenic habitus, 97 per cent of those with dysplastic habitus and 79 per cent of those with pyknic habitus observed in the psychopathic hospital series possessed poorly integrated prepsychotic personalities. In contrast, 44 per cent of the asthenic, 67 per cent of the dysplastic, and 18 per cent of the pyknic patients in the general hospital manifested previous defects in their personality organization.

^{*}Davidoff, E., Reifenstein, E. C., Jr., and Goodstone, G. L.: Personality and habitus in physical disease. Read before the interhospital conference held at the Utica State Hospital, Utica, N. Y., April 26, 1940.

(5) At the psychopathic hospital, greater difficulty is encountered in differentiating those with organic psychoses from those with functional mental illness.

SUMMARY AND CONCLUSIONS

One hundred patients at the Syracuse Psychopathic Hospital who manifested psychoses with organic illness were studied from the standpoint of prepsychotic personality and body type. These were compared with an equal number of cases admitted to a general hospital with physical illness.

A. At the psychopathic hospital:

(1) The vast majority (91 per cent) of cases with organic illness exhibited significantly malintegrated prepsychotic personalities.

(2) There was a relatively large proportion (34 per cent) of persons with dysplastic habitus and a smaller percentage (14 per cent) of individuals with pyknic habitus. While the prepsychotic personality organization was defective irrespective of the habitus, those of pyknic body type manifested a slightly higher percentage of better-balanced previous personality traits.

(3) The psychotic symptoms precipitated by the physical illness were in large measure dependent upon the malintegrated prepsychotic personality, so that differential diagnosis between organic and functional psychosis was established often with difficulty.

(4) All the patients adjusted poorly to the situation of hospitalization.

B. At the general hospital:

(1) A smaller proportion (38 per cent) of individuals with physical illness presented poorly integrated prepsychotic personalities. The degree of previous malintegration was not as marked. In only 20 per cent of the cases were the defects comparable to those observed at the psychopathic hospital.

(2) There was a relatively higher percentage of those with pyknic habitus (34 per cent) and there were relatively fewer individuals of dysplastic body type (12 per cent). A large proportion (82 per cent) of those with pyknic habitus manifested well-integrated prepsychotic personalities, although 56 per cent of those of asthenic configuration were previously well integrated.

(3) The psychotic manifestations, where present, were of relatively milder type and of shorter duration. The symptoms in 62 per cent of the cases were less dependent upon the previous personality. The differential diagnosis between those with organic psychoses and those with functional psychoses was established with less difficulty. However, many obstacles were encountered in attempting to distinguish between psychoneurotic symptoms and complaints of a physical nature.

(4) Only 44 per cent of the patients adjusted poorly to hospital routine.

C. No definite conclusions can be formulated until a larger series of cases is investigated.

PATIENTS IN GENERAL HOSPITAL		PATIENTS IN PSYCHOPATHIC HOSPITA	L
Asthenic	54	Asthenic	52
Dysplastic	12	Dysplastic	34
Pyknie	34	Pyknic	14
Total 1	100		100
Poorly integrated	38	Poorly integrated	91
Asthenic	24	Asthenic	47
Dysplastic	8	Dysplastic	33
Pyknie	6	Pyknic	11
Well integrated	62	Well integrated	9
Asthenic	30	Asthenic	5
Dysplastic	4	Dysplastic	1
Pyknie	28	Pyknie	3
Poorly integrated		Poorly integrated	
Percentage with asthenic habitus	44	Percentage with asthenic habitus	91
Percentage with dysplastic habitus	67	Percentage with dysplastic habitus	97
Percentage with pyknic habitus	18	Percentage with pyknic habitus	79
Well integrated		Well integrated	
Percentage with asthenic habitus	56	Percentage with asthenic habitus	9
Percentage with dysplastic habitus	33	Percentage with dysplastic habitus	3
Percentage with pyknic habitus	82	Percentage with pyknic habitus	21

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AMYOTROPHIC LATERAL SCLEROSIS WITH PSYCHOSIS*

BY SERGE ANDROP, M. D.

Charcot was first to differentiate amyotrophic lateral sclerosis and muscular atrophy. Amyotrophic lateral sclerosis is a disease of the motor system involving the pyramidal tracts, the bulbar nuclei and the anterior horn cells. This degenerative process involves the giant pyramidal (Betz) cells of the upper neuron, and extends through the lower neurons of the neuraxis. Clinically the disease is characterized by muscular atrophy, fibrillary twitchings. spasticity, and symptoms of bulbar involvement. Charcot did not mention the existence of mental symptoms in the course of the disease, but subsequent writers called attention to this occurrence. and the question has always presented itself, whether the psychosis should be attributed to the same degenerative process and considered as part of the disease, or whether the condition should be seen as a mere chance association of two separate, distinct processes. In order to view the mental and neurological manifestations as a result of the same degenerative process, we must find diffuse histopathologic changes in the brain to account for the mental picture which would, naturally, have to resemble an organic dementia and not a functional psychosis. Three such cases were described by Wechsler and Davison.² The case to be presented came to autopsy, and the clinicopathologic study may help to throw some light on the problem inasmuch as it presents the clinical symptoms of an organic psychosis and the diffuse histopathologic changes in the brain to account for the mental picture.

CASE REPORT

History: C. P., a carpenter, age 55, married, was admitted July 1, 1932, from the Maryland House of Correction where he was serving a three months sentence for vagrancy. The transfer was necessitated by a vicious assault on a guard and refusal of food and water for three days "because it was poisoned". His early development and family history are not known. He never went to

^{*}From the neurological laboratory of the Phipps Psychiatric Clinic, Baltimore, and the Spring Grove State Hospital, Catonsville, Md.

school, and could neither read nor write. He came to America from Lithuania at the age of 18, and spoke English poorly. He married a girl of his country 35 years ago, and lived with her for 17 years; the union resulted in four children. His wife left him because he accused her of being unfaithful, claiming that she was pregnant when he married her, and that none of the children were his. He has not seen his wife and children for many years, and none of them could be located. He claims that his wife and Lithuanians have been persecuting him, that all the officers at the house of correction were Lithuanians, and that at the instigation of his wife they put poison in his food and otherwise persecuted him. He claims that his wife was a "hard drinker", and gave him sleeping powders while she went out with policemen. He does not know why she continues to "persecute" him, although he readily admits beating her. He denies alcoholic indulgence.

Clinical course: On admission to the hospital the patient was friendly, but obviously suspicious. He was oriented in all three spheres; the sensorium was adequate. He denied hallucinations, and his delusional material consisted entirely of being persecuted by his wife with the aid of Lithuanians. He insisted that he was not "crazy" and saw no reason for the examination. The physical, neurological, and laboratory examinations at that time proved essentially negative. A diagnosis was then made of paranoid state. For a while he continued friendly, ate his food, but refused to work without pay. He was remarkably polite, on several occasions attempting to kiss the physician's hand. Soon after admission a steady, progressive mental deterioration ensued, extending to his death six years later.

Course of mental illness: The patient refused his food periodically; this would occur at intervals of several months, for only several meals at a time, during which times he would accuse someone of attempting to poison him. At times he was in good humor, cheerful and euphoric, at other times sullen, impulsive, irritable, and combative; he attacked his attendants on two occasions. He was seen laughing and talking to himself. He became childish, stubborn, emotionally unstable, uncooperative, and forgetful. He was careless and neglectful of his person and clothing, and at times did not keep many clothes on. He lost all interest in his surroundings,

and became extremely untidy. He admitted hearing voices, and became confused and disoriented in all three spheres; his sensor. ium became extremely deficient, he had no insight into his condition, denied having enemies, and lost the original, persecutory, delusional content. His memory became greatly impaired. The dementia rapidly progressed until his death.

Course of neurological symptoms: Coincidentally with the mental deterioration, a progressive development of physical and neurological symptoms was observed. The onset was rather indefinite. but steady and progressive. Although his appetite was fair, he steadily and noticeably lost in weight, and atrophic changes of the musculature with fine fibrillary twitchings were noted. A generalized atrophy of body musculature developed, which was most remarkable in the muscles of the arms, shoulder blades, thenar and There were pronounced fine, fibrillary hypothenar eminences. twitchings of the muscles of the back, chest, and upper extremities. and slight twitchings of the tongue. He experienced difficulty in buttoning or removing his clothes due to a marked weakness in his hands and wrists; no tremors of hands or lips or wrist-drop were noted. There was some muscular resistance in the upper extremities. The jaw and pectoral reflexes were present. The deep reflexes were hypoactive in the upper extremities and hyperactive in the lower; the abdominal reflexes were not obtained. The Babinski reflex was positive on the right side and suggestive on the left. It was difficult to determine the sensory status of the patient, but he felt pin-pricks all over his body. He appreciated passive movements of his toes. The optic discs were rather hazy, the pupils round and equal, reacting sluggishly in accommodation. The face did not have much expression. The tongue was rigid and slightly Toward the end of the illness his gait became jerky, the feet being raised higher than usual and brought down with a slap.

Laboratory data: Examination of the blood showed 4,000,000 red cells and 10,000 white cells with a normal differential count. The Wassermann reaction was negative. The urine contained albumin but no casts. The blood pressure was 136 systolic and 92 diastolic.

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Figure 1. Motor area showing disturbance in the architectural arrangement of the cortical layers with destruction of some of the ganglion cells. (Thionin stain.)





Figure 2. Section from upper thoracic region, showing demyelinization of crossed pyramidal tracts and subarachnoid hemorrhage. (Mahon stain.)



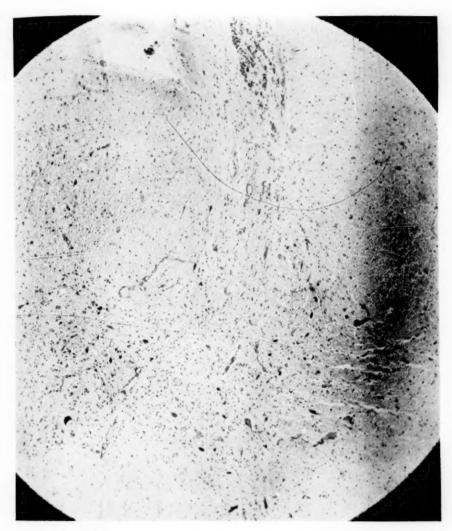


Figure 3. Right, gray matter of the anterior horn of the cervical region showing extreme paucity of the ganglion cells with moderate increase in glia nuclei



Final course: The patient became markedly deteriorated mentally, approaching the condition of terminal dementia. Physically he grew progressively weaker; the heart was enlarged and became irregular, the lower extremities became markedly swollen, and the patient died July 20, 1938, while sitting in a chair. Following the autopsy, myocarditis was stated as the cause of death. The brain and spinal cord were removed two hours after death.

Autopsy; gross examination, brain: The size and weight of the brain were within normal limits. The cerebral vessels were congested, the superficial vessels were prominent. The dura was thickened and greatly adherent to the brain along the longitudinal sinus. The lateral ventricles were only slightly enlarged. The

cranial nerves appeared normal.

Spinal cord: The cord appeared anemic. On section there was a translucency of the crossed pyramidal tracts. A dark streak on either side of the cord was observed; this resembled an extravasation of blood, and extended through the cervical and upper third of the thoracic region.

Microscopic examination, brain: The meninges were slightly thickened. A few of the vessels showed some endarteritic changes, manifested primarily by thickening and proliferation of the intima. No perivascular infiltration was noted. The architectural arrangement of the cortical layers was disturbed. The various layers were not normally delineated, and ran into one another. The changes were seen principally in the frontal and parietal regions, to a lesser degree in the temporal region. The third, fifth, and sixth cortical layers were the areas of predilection, showing a falling-out of ganglion cells. The individual cells presented structural changes such as: poorly stained, irregularly shaped cells; breaking-down of cell structure; enlarged, poorly stained, irregular nuclei. Shadow cells also were seen. In the precentral motor area there was a marked paucity of large pyramidal (Betz) cells: the remaining pyramidal cells were poorly outlined, the nuclei poorly defined and in many instances absent; there was a breaking-down of Nissl substance showing marked chromatolytic changes. There was a slight increase in glia cells.

Spinal cord: Throughout the cord there was a marked demyelinization of both crossed pyramidal tracts and to a lesser extent of

the direct pyramidal tracts. In some sections a mild involvement of the cerebellar pathways was also noted. The posterior funicali were fairly free of the damaging process. The pathologic changes were intense in the cervical region and milder in the thoracic and lumbar regions, where the changes were not always of the same intensity on both sides of the cord. The anterior horns of gray matter were smaller than normal. There was an extreme pancity of ganglion cells in the anterior horns, reaching its height in the cervical region and becoming milder in the lower part of the cord The remaining few ganglion cells presented the same pathologic changes seen and described in the cortical pyramidal cells. The anterior nerve roots were atrophied, the posterior were normal. A slight subdural hemorrhage was noted, situated posteriorly in the lower cervical and upper thoracic sections of the cord, filling the subarachnoid space. In summary, the histopathologic changes were that of amyotrophic lateral sclerosis with definite involvement of the various cortical layers of the brain.

Discussion

Many observers feel that the mental symptoms bear no relation to the systemic disease, and entirely dissociate the psychosis from the amyotrophic lateral sclerosis. Ziegler³ reviews records of 101 patients with amyotrophic lateral sclerosis seen at the Mayo Clinic between 1925 and 1930, 19 of whom manifested spasmodic explosive laughing and crying. From these data, he concludes: "It might seem that the integrity of the upper motor neuron to the nuclei in the brain stem was more closely related to the initiation of emotional mimicry than the nuclei in the brain stem themselves." In only three of the above group did a true psychosis develop. From his own collection he reported three patients with mental symptoms, two of whom showed essential features of a toxic psychosis. Oppenheim and Simmerling thought that the explosive emotional reactions associated with amyotrophic lateral sclerosis were due to lesions of the upper motor neurons which end in the nuclei. Westphal⁵ observed schizophrenic, paranoid and manic-depressive states associated with amyotrophic lateral sclerosis, but considered these to be obviously unrelated. Westphal⁵ and Zacher⁶ both mentioned the development of amyotrophic lateral sclerosis in the course of dementia paralytica. Raymond and Cestan' observed 18 cases of amyotrophic lateral sclerosis, all of which were free from intellectual deterioration. Fragnito⁸ describes three cases and Pilcz, Cullerre, Gentile, Gerbert and Naville, 2 and Buscher¹³ all describe single cases of mental symptoms of the functional psychoses associated with amyotrophic lateral sclerosis. Marie¹⁴ claimed that psychic symptoms were not rare in amyotrophic lateral sclerosis, and considered them as part of the disease. Bogart¹⁵ in an analysis of 31 patients observed characteristic psychotic disturbances in 10, some of whom suffered a progressive intellectual impoverishment with a behavior resembling that observed in senile dementia. He thought that psychosis with amyotrophic lateral sclerosis might be due to cerebral lesions; however, he did not deem that a diagnosis of amyotrophic lateral sclerosis could be made on the basis of the psychic disturbances. He describes in one case associated with the histopathological picture of amyotrophic lateral sclerosis a lacunar state of the central gray nuclei. Bogart, 15 Meyer, 16 Raymond and Cestan, 7 Wechsler and Davison² are the few who have studied histopathologically the spinal cords and brains of patients with amyotrophic lateral sclerosis associated with psychosis. Mever¹⁶ found changes in the brain similar to those seen in gas poisoning. Wechsler and Davison² presented six cases of amyotrophic lateral sclerosis with psychosis, three of which came to autopsy showing diffuse histopathologic changes in the brain to account for the mental pictures.

From this brief review of the literature, it may be said that a psychosis of organic nature in amyotrophic lateral sclerosis is rare. In the majority of reported cases, the systemic disease is not characterized by definite psychotic manifestations. Many of the cases reported in the literature with psychotic manifestations may be explained by an incidental association with the functional psychoses. However, there are those who claim that the functional nature of dementia pracox and of manic-depressive psychosis has yet to be established as a fact, and is at present merely the absence of a well-established organic basis. As neurologists, we have been accustomed to correlate defective function with defective structure, but as psychiatrists, we do not always emphasize this correlation as it applies to diseases of the mind and deteriora-

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tion of the personality. There are few cases reported in which the mental picture and the histopathologic findings appear as part of the degenerative syndrome. However, it must be acknowledged that little material has come to the neuropathologist, and the liter. ature suffers from a paucity of reports on histopathologic studies of the brain and spinal cord in amyotrophic lateral sclerosis with psychosis. The case here discussed presents an apparent correla. tion of defective structure with defective function. picture resembled a cerebral degenerative process characterized by mental deterioration, and the definite histopathologic changes found in the brain and cord warrant the opinion that the degenerative process underlying the motor syndrome may have been responsible also for the organic psychosis, hence that the disease may have been the expression of one generalized pathologic process. Cases such as this, in which organic disease of the brain is associated with deterioration of emotional and intellectual life, help to develop a true pathology of the mind, which is still in its infancy. The conservative attitude would not be to ascribe to the cause of amyotrophic lateral sclerosis all the cortical changes observed in the brain of the reported case, but since we do not know the factors producing amyotrophic lateral sclerosis as we commonly see it, there is no reason for us to deny to that factor the power to affect other parts of the cerebral cortex than those commonly affected in this degenerative system disorder.

SUMMARY

1. The literature of amyotrophic lateral sclerosis with mental symptoms is briefly reviewed.

2. A clinicopathologic study is presented of a case of amyotrophic lateral sclerosis, with clinical symptoms of an organic psychosis and showing diffuse histopathologic changes in the brain.

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RORSCHACH INTERPRETATION OF THE PERSONALITY STRUCTURE OF SCHIZOPHRENICS WHO BENEFIT FROM INSULIN THERAPY

BY FLORENCE HALPERN

The Rorschach test was one of a battery of tests* given to a number of schizophrenic patients who were treated with insulin at the Bellevue Psychiatric Hospital. The tests were given before and after insulin therapy. Since the Rorschach test gives a picture of the personality structure, the protocols obtained from these patients were studied in an effort to determine (1) which personality types benefit most from insulin therapy and (2) what changes are found in the personality structure after insulin has been given.

Pre- and posttreatment Rorschach records were obtained from 17 schizophrenic patients.† The patients were all men, 18 to 30 years old, with the average age between 22 and 23 years. Treatment was terminated for all these patients one to three years ago. Followup studies have been made in each case by means of interviews with the patient at stated intervals, contact with the family of the patient, and correspondence with the State hospital to which unimproved cases were committed. Thus, in studying the effect of the insulin therapy, we are not solely dependent upon the picture presented by the patient at the time of discharge, but have his subsequent history to substantiate the classification of "improved" or "unimproved".

The classification "improved" covers those cases showing a change in behavior sufficient to enable the patient to resume his place in society for a period of one year or longer. "Unimproved" patients were those who did not respond to treatment or who were unable to maintain what gain they made for at least one year.

The subjects are divided into two groups: (1) Group A, consisting of seven patients who did not respond to treatment or who suffered relapses within six to nine months after treatment was completed. Six of these patients are now in State hospitals, and the remaining one has been unable to make any effective social or eco-

^{*}V. Wechsler, Halpern and Jaros:

PSYCHIAT. QUART., 14:3, July, 1940, in vince is made to the work here discussed.

†Actually only 33 records were used because on. patient was not given a posttreatment examination.

nomic adjustment. (2) Group B: seven patients who attained satisfactory adjustment for a period of one year or longer (average 23 months) as measured by their ability to get along with their families, resume their studies or hold remunerative positions. To this group must be added three patients who were adjusting well for periods of 17, 27 and 21 months, respectively. Although they have since suffered relapses, their gain was maintained for a period as long as that of several patients of group B, whose final prognosis also remains unknown. In order that the number of patients in each group might be the same, and since the addition of these three patients to group B does not change the general picture in any way, the results of their Rorschach tests have not been used in obtaining the percentages upon which group comparisons were made, but are appended to Tables 1 and 2.

A summary of the pretreatment protocols obtained from each group is given in Table 1. A comparison of these results shows that the two groups differ markedly in at least three of the test factors. These are (1) productivity, that is, the number of responses given, (2) the *Erlebnistyp* shown by the patient, (3) the presence or absence of human responses (H).

The number of responses generally obtained from an average individual ranges from 20 to 50. Responding freely indicates a variety of associations, a willingness to enter into the task and an absence of blocking or inhibiting factors. The unimproved cases in this group gave a total of 102 answers, with an average of only 14.6 responses, the range being from 2 to 24. Patients in group B gave a total of 227 responses with an average of 32.4, and a range from five to 65. The latter is obviously closer to the level of expectancy for normal adults. In addition to the number of responses given, or more specifically, in contrast to it, we find the number of refusals in group A, that is, the inability to give even one interpretation to each plate, three times as great as that present in group B.

In comparing the affective life of the two groups, we observe that the lack of emotional responses and the general emotional flatness of the patients in group A contrasts markedly with the picture presented by those in group B. The color sum* for group A is only

^{*}The "color sum" is obtained by counting each FC response as 1/2, CF as 1 and C as 11/2.

TABLE 1. BEFORE INSULIN TREATMENT

	Ь	63	C)	63	1	4	63	60	20		Ь	-	1	03	1	9	00	4	31		Ы	7	4	63	14						
	RF	6	00	-			10		18		RF			10	63		:	8	10		RF		:	တ	03						
	RS	63	7	17	24	21	7	24	102		RS	65	35	10	19	63	30	10	227		RS	53	49	6	111						
	Ms	:	1	63	-	00	:	93	10		Ms	2	63		63	28			41		Ms	4	15	63	21						
	Obj	:		7	-	69	1	00	19		Obj	21	8		1	20	9	69	26		Obj	60	6	63	14						
	At	:	:	:	13	63		1	17		At		:		80	:	C9		10		At	10	63	1	13	RF% 17	onses				
	PH		:	:	c9	1		63	10		PH	63	m		63	-	4	1	13		Hd		10	:	10	RS 102 227	f resp				
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proved						1		8		roved)			83				•			in p			63		8	M:C 2:10 24:25					
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	A	:	-	00	10	13	9	15	47				21	:	1	6	16						28				tomy				
							1		46				14										9				At-Anatomy				
	No.	1	63	80	4	10	8	7					6						7						Total		At				

14.9

24:25

25

18.9

56

33

227

After treatment

Before treatment After treatment

Group B

6.9

5:10% 2:10

10%

3.9

100

73

53

102

Before treatment

Group A

RS

M:C

C sum

%W

TABLE 3

*Case which did not receive posttreatment examination

George A (Traimproped)

													F	LC	R	EN	C	E	Н	AI	P	ER	N					
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	RS	10	0	22	37	22	6	21	116		RS	20		63	21	35	29	12	146		RS	41	34	10	85			
	Ms	1		1			:	4	9		Ms	9			*	10	4		24		Ms		13	63	15			
	Obj			10	2	1	:	4	22		Obj	14			9	10	ゼ		34		Obj			7				1/2
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1 (01	ô	1		1	-	:	:		63	B (1	ô	9	:			N			5 6	inclu	ò		1		-	C suin	10	11
GROUP 1	O	:		0		:		:	0	GROUP										- 4	0					M%	13.7	17.0
G	CF	1		rO.		:		C3	00	9	CF	4		0		4			00	NALB	CF		1	1	ca	F+%	00	86
	FC			C)	-	-	:	1	ro		FC	60			-	-	H		9	ADDITIONAL	FC				1-	7 M	3	3
	Fm			C3	-	:		:	83		Fm	:	:		:				:	AI	Fm				cq.	F	99	20
	FM			10	1	1	1	:	80		FM	2			:	-	0 0	:	00		FM	4	03		1-	D%	53	45
	M			1	1	63	:	1	10		M	12	0				60	C4	17						-	%M	34	47
	J				:	:	:		0		1		:		:		63					4			1-		A	В
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	No.	1	63	03	4	10	9	-	Tota		No.	00	6 *	10	11	12	13	14	Tota		No.	15	16	17	Tota			

10, while for group B it is 25. True, the affect displayed by the subjects in group B is frequently inappropriate, but the fact stands that it is present. If to this evidence of active emotionality we add the responses determined by the chiaroscuro values of the plate, the difference between the two groups becomes even more striking. The patients in group B are disturbed, anxious, and sensitive to their surroundings, as evidenced by the number of c, C' and K responses found in their protocols.

Subjects in group B not only respond to outer stimuli, witness their relatively high color sum, but are still capable of some inner life—some capacity for fantasy and creation remains with them. This shows itself in the movement answers. The percentage of kinesthetic interpretations, including animate and inanimate movement, is almost five times greater in group B than in group A. Furthermore, this maturity and creativity is a real factor in group B since the M responses for this group outweigh the FM and Fm responses in the ratio of 8:5. In group A, on the other hand, only one patient gave M responses and two patients gave one FM response each.

Finally, there is a marked difference in the percentage of human responses given by each group, the percentage of those given by group B being three times that of group A. Giving a human response implies an identification with, or empathy for, humans, which of itself precludes a total lack of affective reaction. In this connection it is interesting to note that of the five human responses given by the patient in group A, four of them were "stylized" humans, that is, marionettes and caricatures, while in group B this was true of only nine of the 34 human interpretations given. On the other hand, group A gives a much higher percentage of human detail and anatomy responses than does group B.

We find then that the patients in group A present a picture of rigid personality, and are generally nonproductive, probably as the result of general emotional dullness and blocking. They are incapable of emotional response no matter how provocative the test situation, and show little or no capacity for identifying themselves with other human beings. This group in many respects resembles

the picture frequently seen in patients with organic psychoses. The patients in group B are receptive to emotional stimuli and have a

definite capacity for empathy.

Since the three criteria discussed above, (1) productivity, (2) emotional range, and (3) capacity for empathy, are those which primarily differentiate the two groups, they were used as a measuring rod against which each individual protocol was laid in an attempt to prognosticate the effect of insulin therapy. From a study of Table 1, it is easy to see that the following predictions might well have been made: In group A, four patients, cases 1, 2, 4 and 6, would not have recommended for treatment. Some question might be raised with reference to patient 2 because of the fact that he gives three human responses, but these were all of the stylized kind. In group B, six patients would have been unhesitatingly recommended for treatmet. Patient 10 would have been considered a poor risk because of his meager output and marked coartation.* However, the fact that out of a total of five responses three of them showed human content (people without abnormalities or supernatural connotation) swings the verdict in favor of giving him this opportunity. The three additional patients (cases 15, 16, 17) would have been recommended for treatment. Comparing these predictions with the actual results, we see that out of 17 cases correct prognosis would have been made in 14. Since the incorrect predictions fall on the side which gives the patient the benefit of the doubt, that is, recommending treatment where it later proves ineffective, as in cases 3, 5, 7, this prognostic procedure is actually safer than the numerical results indicate.

In no sense can this discussion be interpreted as implying that on the basis of the Rorschach test alone patients should be selected for insulin treatment. The group used in this study was a selected group in that it had been chosen from a large number of schizophrenic patients by the psychiatrists in charge of insulin work as being suitable for this treatment. On the other hand, it is obvious that the Rorschach test points in the right direction, and hence, in conjunction with other criteria, may be considered an aid in prognosis.

^{*}Coartation: A narrowing of the individual's capacity for emotional reaction, resulting in marked reduction or complete absence of affective life.

The results of the records taken at the conclusion of insulin treatment are shown in Table 2. Many factors in the posttreatment records of both groups show a much closer approximation than do the pretreatment records to established norms for average normal individuals. Table 3 compares the pretreatment and post-treatment protocols of each group.

In the posttreatment protocols, the percentage of whole and detail responses and the relation between them are an indication of greater awareness of reality on the part of the patient, a more concrete, practical approach to the various situations incorporated in

the plates than was present in the pretreatment records.

The affective life of the patients also shows a change. The subjects in group A in all but one instance show some receptivity to emotional stimuli, even though this is not always well controlled or adapted. In four of the seven cases there is also some evidence of inner life, some sign of creativity, which was absent in all but one of the pretreatment records of this group. In group B the emotional life of the subjects is likewise altered. The pretreatment records showed considerable preponderance of impulsive and uncontrolled emotionality. Posttreatment records show an adjustment of this factor in the direction of the socially acceptable response. Nearly all test factors in the posttreatment records of both groups show this trend toward the more normal picture.

One may well ask, are these improvements the result of insulin therapy, or are they part of the fluctuations one normally finds in the schizophrenic process? It is not reasonable to assume that all, or even the great majority of schizophrenic patients, would tend in the same direction during the one to three-month period represented by the average course of treatment, were there not some common factor exerting pressure in that direction. As far as can be determined, the only thing these patients had in common was the ward routine and the insulin therapy. The ward routine may well be a beneficial agent in some cases, providing as it does a retreat from the demands and conflicts of life outside the hospital. However, this period of rest and hospitalization does not seem sufficient to sustain the patient through the prolonged interval during which some of them have held their gain. Rather one receives the impression that the insulin treatment aids the subject in making

better social adaptation for greater or lesser periods of time, and to a greater or lesser degree, depending upon his receptivity at the time treatment is instituted.

It is interesting to note that several of the posttreatment protocols in group B still show a definitely schizophrenic pattern. In spite of this, the subject has been able to carry on effectively. One can only assume that the basic personality structure is that of the schizophrenic, but that the individual is able at the time to make an adjustment to normal life.

CONCLUSIONS

(1) The Rorschach test is of aid in prognosticating the success of insulin therapy for schizophrenic patients.

(2) Insulin therapy applied to schizophrenic patients results in personality changes which are demonstrable in the Rorschach test. These changes tend in the direction of socially acceptable behavior. The extent of change and the ability of the individual to sustain this gain is dependent upon his status at the time of treatment.

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BIOCHEMICAL STUDIES OF SCHIZOPHRENIA

The Chlorides in Blood Plasma and Red Blood Cells*

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In attempting to approach the problem of schizophrenia from an organic point of view, little help is to be obtained from the voluminous literature of the subject. Not a single humoral-pathologic sign has been observed as characteristic of schizophrenic individuals. Except for the alterations in the third layer of the cortex seen in the advanced stages of schizophrenia, histological examination of the brain has provided no clue to the pathogenesis of this illness. Lewis summarizes this concept as follows: "At the present time there is no set of criteria other than the mental symptoms on which to make a diagnosis of dementia pracox, and most of the mental symptoms will require much additional study before accurate descriptive types and subtypes can be formulated, therefore practically all of the detailed laboratory work that has been done to date regardless of how elaborately it has been done technically, statistically, and otherwise, will have to be repeated in the light of a different segregation of the material."

The word "schizophrenia" covers a variegated group of disorders which have been arbitrarily classified as catatonic, paranoid, and hebephrenic, according to purely clinical symptoms. The lack of characteristic organic signs is due undoubtedly to the heterogeneity of the syndromes considered to be schizophrenic.

It is true that the predominant symptoms of schizophrenia depend upon a disturbed function of the brain. But it must be emphasized that there are good reasons for believing that schizophrenia is not exclusively a brain disease but a disturbance of the whole organism. Grühle² compared it to arthritis, and perhaps it may safely be compared to other diatheses. The altered condition of the body exists for a variable length of time before the dysfunction of the brain produces the mental symptoms.

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The determinations of blood chlorides presented in this paper seem especially appropriate for the investigation of a disease which, presumably, represents a general rather than a localized dysfunction. Chloride ions are present in every cell and in every body fluid, and they are able to penetrate the cell membrane easily, hence alterations in any part of the body may produce compensatory chloride migration.

It is the chloride content of the cell, however, not that of the blood, which is relevant to the present problem. The only cells readily accessible for biochemical study are the red blood cells. Any osmotic, electrical, chemical or physical changes of the body tissues may produce an effect on the chemistry of the red blood

cell by way of the plasma.

Two of the writers³⁻⁵ observed changes in the chloride content of the red blood cells of patients with schizophrenia in 1938. A marked increase of chloride in the red blood cells was noted in a group of such patients. Riebeling⁶ found a very high chloride content in the brain of schizophrenics, higher than that found in ure-

mia. This agrees with the above-mentioned findings.

Appel, Farr and Hodes and Gerundo found normal chloride values in the blood plasma of schizophrenics. Tomesco, Cosmulesco, Serban and Gissan⁹ observed normal values of between 270 and 310 mgm. per cent in the plasma of 19 of 24 patients having schizophrenia; however, in three patients the values were higher and in two patients lower than normal. Weston¹⁰ found average values of 495 mgm. per cent in the whole blood of 10 epileptics and 494 mgm. per cent in 10 manic-depressive patients, whereas in schizophrenics the average value was 505 mgm. per cent. He did not draw any conclusions from these observations and considered his findings within normal values. In 1917 Ishida¹¹ examined five patients with schizophrenia and found very low blood chloride values. In fact, his values are so low (199 to 220 mgm. per cent) that it seems reasonable to doubt the reliability of his method. Marco and Zara¹² and Minker-Bogoanova and his coworkers¹³ likewise found a diminution of chlorides in the blood. Loiseleur¹⁴ and Lobo-Onell et al.15 reported finding an inverse relation between glycemia and chloremia. The only determinations of chloride in the red blood cells of schizophrenics, so far as the available literature reveals, were performed by Chatagnon¹⁶ in 1939. In seven schizophrenic subjects he found no difference from normal chloride values. Chatagnon used the technique of Laudat,¹⁷ by which the chloride is determined separately in plasma and in red blood cells. Chatagnon's findings are contrary to those of the writers. It is not certain whether the technique used by Chatagnon is appropriate for the determination of small changes in the chloride content of the red blood cell. It must be emphasized that the calculation of red blood cell chloride from the values of whole blood and plasma, and from the volume of erythrocytes, as used by Gram¹⁸ and by Karady, Brown and Seleye,¹⁹ is not reliable, as can easily be demonstrated. Gram states that the error increases with the decrease in the volume of red blood cells.

An increase in red blood cell chloride does not readily show in the chloride determination of whole blood. The chloride concentration in red blood cells is about one-half that in the plasma. The erythrocytes make up about 45 per cent of the total blood volume. The chlorides in red blood cells, therefore, represent about 30 per cent of the chlorides in the whole blood. A chloride increase or decrease of 20 per cent from the average normal value of 183 mgm. per cent in red blood cells produces a change of about 6 per cent in the whole blood, which is within the normal values of 275 to 310 mgm. per cent. As the increase of red blood cell chlorides in the present determinations never exceeded 20 per cent of the average normal values, this increase does not show in the examination of the whole blood. Furthermore, the chloride content of the whole blood depends largely on the volume of the red blood cells. Table 1 illustrates this effect.

TABLE 1. EFFECT OF VOLUME OF RED BLOOD CELLS ON THE CHLORIDE CONTENT OF THE WHOLE BLOOD

Chlorides in red blood cells	Chlorides in plasma	Volume of red blood cells	Chlorides in whole blood
183 mgm. per cent	372 mgm. per cent	48 per cent	281 mgm. per cent
183 mgm. per cent	372 mgm. per cent	35 per cent	306 mgm. per cent

METHOD

All chloride determinations were performed on fasting patients. Preliminary experiments showed that there was no difference in the results whether venous or capillary blood was used, and none whether calcium oxalate or "Heparin Roche 318" was used as an anticoagulant.^{20, 21} The determinations were done with calcium oxalate, to prevent clotting, and no hemolyzed specimens were used.

The technique here used is based on the principle of the microchloride determination of Bang, Pinkussen and Sahli, as cited by Lenhartz and Meyer.²² It was modified for the determination of chloride in plasma and red blood cells separately.

- (1) Taking of blood samples. Blood from the fingertip is collected in a small glass tube, about 18 to 25 mm. in length and about 12 mm. in diameter, which contains a small amount of calcium oxalate. About 0.3 c.c. of blood is collected while the tube is agitated to prevent coagulation.
- (2) Separation of plasma and red blood cells. A capillary glass tube, about 2 mm. in diameter and 20 to 22 cm. long, well cleaned and dried, is bent to a U-shape, leaving one end about 6 mm. longer than the other. The blood is collected by capillary force through the longer end, the tube being almost completely filled, and is then centrifuged at a definite speed for exactly 30 minutes. The capillary tube is then scratched with a file and broken in such a way that only red blood cells are found in the lower part and only plasma in the upper. The portion of the tube containing the border between the red blood cells and plasma is not used.

With a micropipette, 0.1 c.c. of plasma and 0.1 (or 0.2) c.c. of red blood cells are aspirated directly from the capillary tube, pressing the pipette against the tube in a horizontal position. The pipette is emptied into a 30 to 50 c.c. beaker containing 0.8 c.c. of distilled water with which the pipette is rinsed several times.

(3) Deproteinisation. Nine and two-tenths cubic centimeters of absolute alcohol is added so that the alcohol concentration of 92 per cent required by the original method is maintained. The beaker is kept covered for 24 hours and its content is then filtered

through a small hard filter into a 50 c.c. Erlenmeyer flask. The beaker and the filter are each washed twice with 9 c.c. of 92 per cent alcohol.

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- (4) Titration. Two drops of concentrated nitric acid and exactly 1 c.c. of an n/50 silver nitrate solution are added to the filtrate, and finally one drop of a cold saturated ammoniacal iron alum solution. A solution of n/50 ammonium thiocyanate is added from a micropipette until the solution becomes very slightly reddish. One or two controls are done with 25 c.c. of 92 per cent alcohol. The titer of the silver nitrate and ammonium thiocyanate solutions is determined separately for each series of determinations.
- (5) Calculation. The n/50 solution of ammonium thiocyanate used is subtracted from the n/50 silver nitrate solution. Each cubic centimeter of the difference corresponds to 0.71 mgm. of chlorine (or 1.17 mgm. of sodium chloride). In this paper all values are reported as chlorine, not as sodium chloride.

RESULTS

The detailed data and results of the examination of the chlorides in red blood cells and plasma of 35 normal controls and 91 patients, including 38 schizophrenics, are presented in Table 2.

TABLE 2. CHLORIDES IN RED BLOOD CELLS AND PLASMA OF NORMAL PERSONS AND PATIENTS HAVING SCHIZOPHRENIA AND OTHER MENTAL DISTURBANCES

					Chloride in mgm.	per cent	
Number	Sex	Age	Diag	nosis	Red blood cells	Plasma	Ratio
1	F	29	Normal	subjects	163	348.5	2.13
2	M	23	"	"	177	369	2.08
3	F	25	"	"	186.5	380	2.04
4	F	23	4.6	66	195.5	367	1.88
5	M	24	"	"	184.5	369	2.00
6	\mathbf{F}	30	"	44	178	391	2.19
7	\mathbf{F}	22	"	4.6	186.5	371	1.99
8	F	25	"	4.6	186.5	377	2.02
9	M	22	"	4.6	192	377	1.96
10	M	38	"	**	188	384	2.04
11	F	22	"		171	377	2.21
12	F	23	"	"	184	372	2.02
13	\mathbf{F}	27	**	**	184.5	355	1.92

TABLE 2—(Continued)

					Chloride in mgm	. per cent	
Number	Sex	Age	Diagnosis		Red blood cells	Plasma	Ratio
14	\mathbf{F}	25		6	183	373	2.04
15	\mathbf{M}	19	"	6	190	368	1.94
16	F	22	"	6	184.5	380	2.0
17	\mathbf{F}	31	"	6	186.5	382	2.0
18	M	30	"	4	176	375	2.13
19	\mathbf{F}	22	66	6	184.5	362	1.9
20	\mathbf{F}	19	"	6	192	362	1.8
21	\mathbf{F}	18	66	6	184	376	2.0
22	\mathbf{M}	21	66	6	194	378	1.9
23	\mathbf{F}	22	"	6	163	359	2.2
24	\mathbf{M}	25	"	6	184.5	373	2.0
25	\mathbf{F}	24	66	6	163	362	2.2
26	\mathbf{F}	38	"		167	366	2.1
27	\mathbf{F}	20	"	6	183	383	2.1
28	\mathbf{F}	18	"	6	190.5	373	1.9
29	\mathbf{M}	34	"	6	195.5	376	1.9
30	M	29	44	6	171	373	2.1
31	\mathbf{F}	18	66	6	184.5	376	2.0
32	F	21	46	6	184.5	383	2.0
33	M	22	"	6	192	375	1.9
34	F	31	66	6	188	•••	
35	M	41	"	6	178.5	352	1.9
		age 25			182.8	372	2.0
1	F	36	Catatonic schize	onhrenia	212.5	372.5	1.7
2	F	47		opmenia	210	380	1.8
3	M	33	**	6	180	351	1.9
4	F	23	66		212.5	383	1.8
5	F	55	"		206	373	1.8
6	M	38		16	206	391	1.9
7	M	34		6.6	200		1.8
8	M	29		6.6		372	
9				66	195.5	365	1.8
10	M	35		16	206	355	1.7
	M	41			198.5	378	1.9
11	M	43		66	196	382	1.9
12	F	60			184.5	376	2.0
13	F	23			217	398	1.8
14	F	28			199	• • •	
15	\mathbf{F}	25		6.6	195	394	2.0
16	M	35			198	376	1.8
17	M	45	"	66	192	376	1.9
	Aver	age 37			200.5	376.4	1.8

TABLE 2 (Continued)

					Chloride in mgm		
Number	Sex	Age	Di	agnosis	Red blood cells	Plasma	Ratio
18	M	38	Paranoid	schizophrenia	194	374	1.93
19	\mathbf{F}	39	"	"	188	386	2.05
20	\mathbf{F}	64	**	66	192	376	1.96
21	\mathbf{F}	58	**	**	192	376	1.96
22	\mathbf{F}	51	**	4.6	199	367	1.84
23	\mathbf{F}	44	44	"	181.5	381	2.10
24	\mathbf{F}	45	"	**	190.5	375	1.96
25	\mathbf{F}	59	44	**	192	380	1.98
26	\mathbf{F}	54	**	66	184.5	373	2.02
27	\mathbf{M}	30	66	4.6	199	384	1.92
28	M	25	**	44	188	391	2.08
	Aver	age 46			191	378.5	1.98
29	F	39		ic schizophrenia	a 214	376	1.76
30	\mathbf{M}	25	" "	"	199	390	1.96
31	\mathbf{F}	37	"	"	192	398	2.0
32	M	37	"	**	198	373	1.88
33	\mathbf{M}	27	"	**	195.5	379	1.9
34	\mathbf{F}	50	"	**	213	383	1.8
35	\mathbf{F}	20	"	"	192	383	2.0
36	M	28	"	66	198.5		
37	M	21	"	66	183	366	2.0
38	\mathbf{F}	15	"	"	184.5	370	2.0
	Aver	rage 30			197.6	379.8	1.9
	Aver	rage 38	All sel	nizophrenics	197	378	1.9
1	F	38	Psyc	honeurosis	184.5	386	2.10
2	\mathbf{M}	37		"	177	372	2.10
3	M	42		"	195	376	1.93
4	\mathbf{F}	50		"	184.5	387	2.10
5	\mathbf{F}	58		"	177	386	2.18
6	\mathbf{M}	39		"	183	350	1.89
7	\mathbf{M}	20		"	177	372	2.10
8	\mathbf{F}	24		"	184.5	379	2.06
9	M	33		"	192	383	2.00
10	\mathbf{M}	29		44	174	380	2.18
11	\mathbf{F}	40		66	181.5	383	2.11
12	M	24		**	192	376	1.96
13	\mathbf{F}	42		**	180	385	2.1
14	M	46		66	184.5		
15	\mathbf{F}	24		66	192	380	1.9
16	M	24		"	184.5	364	1.9
17	\mathbf{F}	42		**	192	391	2.0
18	M	24		**	192	376	1.9
19	\mathbf{F}	32		**	174	369	2.0
20	\mathbf{F}	24		**	192	390.5	2.0
21	M	67		**	192	388	2.0
	Ave	rage 36			185	378.7	2.0

TABLE 2 (Concluded)

				Chloride in mgm		
Number	Sex	Age	Diagnosis	Red blood cells	Plasma	Ratio
22	M	56	Manic-depressive psychosis	177	364	2.06
23	M	43	"	192	390.5	2.04
24	M	54	"	184.5	372.5	2.02
25	\mathbf{F}	47	66 66	192	384	2.00
26	\mathbf{F}	54	**	178	371	2.09
27	F	76	"	181.5	376	2.07
	Aver	age 55		184	376	2.05
1	F	50	Tabes dorsalis	180	374	2.08
2	\mathbf{F}	34	Paralysis agitans, chronic			
			encephalitis	175	372	2.12
3	F	27	Friedreich's ataxia	180	352	1.95
4	F	60	Parkinson's disease (arter	io-		
•	-	•	sclerotic). Paralysis			
			agitans	169	300	1.77
5	F	58	Carcinoma of breast	176	354	2.01
6	F	27	Marie's ataxia without	110	001	2.01
U		41	optic atrophy	182	384.5	2.11
	\mathbf{F}	38		104	304.0	2.11
7	F.	58	Osteomyelitis, draining	170	0.00	0.0
			epidural abscess	178	369	2.07
8	\mathbf{F}	63	Cerebral syphilis, paranoi			
			ideas	183	351	1.91
9	\mathbf{F}	44	Allergy, migraine, chronic			
			mastoiditis, chronic			
			furunculosis	179.5	356. 5	1.98
10	\mathbf{F}	46	Multiple cerebral thrombi	181.5	355	1.96
11	\mathbf{F}	65	Guillain-Barre syndrome	181	354.5	1.96
12	M	53	Choriomeningitis	183	369	2.01
13	M	34	Korsakow's psychosis	196	420	2.13
14	\mathbf{F}	36	Convulsive disorder, poss			
			brain tumor	195	287	1.47
15	M	50	Diabetes mellitus	184.5	365	1.98
16	F	42	Chronic alcoholism	184.5	391	2.13
17 18	F M	34	Congenital syphilis	183	369	2.02
10	M	28	Congenital syphilis,	s 184.5	383	2.08
19	F	54	pulmonary tuberculosi Myxedema	171	362	2.0
20	M	35	Chronic alcoholism	184.5		
21	M	59	Morphine addiction	192	355	1.88
22	M	21	Chronic encephalitis	192	390.5	2.03
23	M	37	Chronic alcoholism	181.5	371	2.04
24	F	23	Congenital syphilis	184.5	386	2.09
25	F	50	Hypertension	192	359	1.8
26	M	65	Pick's disease	199	376	1.89

A summary of the results presented in Table 2 is tabulated in Table 3:

Table 3. Summary of Results of Blood Chloride Determinations in 126 Subjects

		Number of	Chloride in mgm	per cent	
Тур	pe of subject	cases	Red blood cells	Plasma	Ratio
A.	Normal	35	182.8	372	1:2.04
В.	Schizophrenic	38	197	378	1.92
	1. Catatonic	17	200.5	376.4	1.878
	2. Paranoid	11	191	378.5	1.98
	3. Hebephrenic	10	197.6	379.8	1.934
C.	Manic-depressive	6	184	376.3	2.046
D.	Psychoneurotic	21	185	378.7	2.045
E.	With organic somatic disease		183.5	360.2	

That chloride values in plasma do not differ greatly in normals, schizophrenics and psychoneurotics may be seen in Table 4.

TABLE 4. PLASMA CHLORIDE VALUES IN FIVE GROUPS OF SUBJECTS

Туре	of subject	Number of cases	Mean plasma Cl. in mgm. per cent	Range of plasma Cl. in mgm. per cen
A.	Normal	34	372	348.5-391
B.	Schizophrenic	36	378	351 -398
	Manic-depressive		376.3	364 -390.5
	Psychoneurotic		378.7	350 -391
	With somatic and central nervous system disease		360	287 -420

Chloride values in blood plasma (average values as well as the range in mgm. per cent in schizophrenics and in psychoneurotics) are approximately the same as in normals. Only in the organic somatic diseases do the plasma chloride values show a wide range from 287 to 420 mgm. per cent, as compared with a range of 348.5 to 391 in normals. (The average values are without significance in this thoroughly mixed group.) The lowest value, 287 mgm. per cent, was found in a patient having a convulsive disorder with possible brain tumor; the highest value, 420 mgm. per cent, in a patient with Korsakow's psychosis.

In mental disease, the results of the chloride determination in red blood cells are far more significant. The chloride content of the red blood cells of schizophrenics is on the average 8 per cent higher than that of normals. Table 5 shows the values for the different groups.

TABLE 5. CHLORIDE VALUES IN RED CELLS OF VARIOUS GROUPS OF SUBJECTS

Туре	of subject	Number of cases	Mean Cl. values in red blood cells in mgm. per cent	Range of red blood cell Cl. in mgm. per cen
A.	Normal	35	182.8	163 -195.5
В.	Schizophrenic	38	197	180 -217
	1. Catatonic	17	200.5	180 -217
	2. Paranoid	11	190.9	181.5-199
	3. Hebephrenic	10	197.6	183 -214
C.	Manic-depressive	6	184	177 -192
D.	Psychoneurotic	21	185	174 -195
E.	With organic somatic disease	26	183.5	169 -199

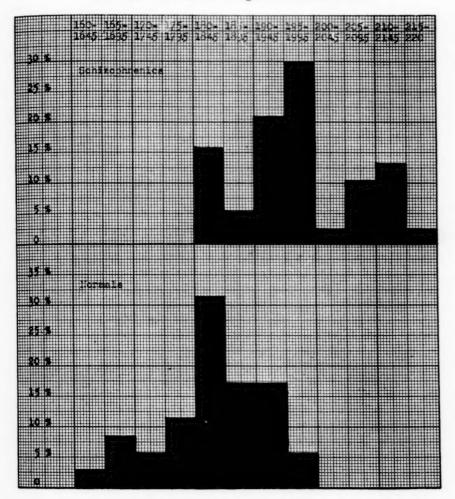
The highest red blood cell chloride values in the schizophrenic group here were found in the 17 catatonic patients (the average being 200.5 mgm. per cent). Next in order were the 10 hebephrenics (with an average of 197.6 mgm. per cent). The lowest values were found in the 11 paranoids (their average being 190.9 mgm. per cent). The groups with psychoneurosis and organic diseases showed average values close to the normal. The average increase of 8 per cent in the schizophrenics may not seem significant. It must be noted, however, that the range goes from 180 to 217 mgm. per cent in schizophrenics as compared with 163 to 195.5 mgm. per cent in normals. Of the 35 normals, 27 (77 per cent) have red blood cell chloride values below 190 mgm. per cent, whereas of the 38 schizophrenics, 30 (79 per cent) have values above this figure. Table 6 and Figure 1 show this relation clearly.

The ratio of blood plasma chloride averages to red blood cell chloride averages in normals is 1:204; the range, 1:188 to 1:222. The average value in schizophrenics is 1:192.4, with a range of 1:172 to 1:210, while that of the psychoneurotics is nearly equal to that of normals, namely, 1:204.5, with a range of 1:189 to 1:218. The significance of these findings will be discussed later, but it is safe to say that, with the technique described, changes in the blood cell chlorides may be found in most schizophrenics, mainly in the catatonic type, whereas the plasma chloride shows no significant variation from normal values.

Table 6. Proportion of Persons in Each Group Having Red Blood Cell Chiorides in Various Ranges from 160 TO 220 MGM. PER CENT

	Ä	Number of cases	Type of subject	Percentage of persons in each group with red blood cell chlorides in mgm. per cent between 160-165-170-175-180-185-190-195-200-205-210-215-164.5 169.5 174.5 179.5 184.5 189.5 194.5 199.5 204.5 209.5 214.5 220.	of pers 165- 169.5	170- 174.5	ach gro 175- 179.5	of persons in each group with 165- 170- 175- 180- 169.5 174.5 179.5 184.5	red ble 185. 189.5	red blood cell 185- 190- 189.5 194.5	chloride 195- 199.5	200- 204.5	s in mgm. per 200- 205- 204.5 209.5	cent be 210. 214.5	215- 220.
(A)		35	Normals	2.9	8.6	5.7	11.4	31.5	17.2	17.2	5.7	:	:	:	:
(B)		38	All schizophrenics	:	:	:	:	15.8	5.5	21.	28.9	2.6	10.5	13.2	2.6
	<u>E</u>	17	Catatonic schizophrenics	:	:	:	:	11.8	:	5.9	35.3	5.9	17.7	17.7	5.9
	(2)	11	Paranoid schizophrenics	:	:	:	:	18.2	18.2	45.5	18.2	:	:	:	:
	(3)	10	Hebephrenic schizophrenics	•	:	:	:	20.	:	20.	30.	:	10.	20.	:
6		7	Manic-depressive patients	:	:	:	14.3	57.1	:	28.6	:	:	:	:	:
<u>(a)</u>		21	Psychoneurotics	:	:	9.5	14.3	38.	÷	33.3	4.8	:	:	:	:
(E)		56	Patients with org. som. diseases	:	3.9	3.9	15.	54.	:	11.5	11.5	:	:	:	:

Figure 1. Percentage of Normals and Schizophrenics with Red Blood Cell Chlorides in Mgm. Per Cent Between



The importance of blood cell chloride determinations is emphasized by the following results obtained in schizophrenics treated with insulin or metrazol. The chloride values in six patients treated with insulin alone, or with insulin plus metrazol, were determined at regular intervals. The two complete remissions showed a marked decrease in the high initial chloride values of their red blood cells. The following brief case reports emphasize the value of these studies:

Case 1. C. D., a 22-year-old female, experienced a sudden onset of acute catatonic schizophrenia. She was treated for three and one-half months with insulin and insulin plus metrazol. The treatment was followed by a complete remission. The red blood cell chlorides decreased from 212.5 mgm, per cent before treatment to 186 after the remission.

Case 2. S. B., a 36-year-old female, had a sudden onset of acute catatonic schizophrenia. She was treated for two and one-half months with combined insulin and metrazol. A complete remission followed. The red blood cell chlorides decreased from 212.5 mgm. per cent before treatment to 181.5 after the remission.

Case 3. H. S., a 23-year-old female, had chronic catatonic schizophrenia. The onset was gradual. A second course of insulin treatment, lasting three months, resulted in some improvement. The red blood cell chlorides decreased from 216.5 mgm. per cent before the second course of treatment to 192 at the end of the treatment.

Case 4. M. M., a 35-year-old male, had chronic catatonic schizophrenia of several years duration. Two courses of insulin treatment, the second combined with metrazol, resulted in no improvement. The red blood cell chloride values varied throughout between 188 and 198 mgm. per cent. There was no change in the blood cell chlorides before, during, or after treatment.

Case 5. Y. D., a 58-year-old female, had a chronic paranoid schizophrenia of 20 years duration. Slight improvement followed four months of insulin treatment. The red blood cell chloride values varied between 192 and 199 mgm. per cent. There was no change in the blood cell chloride values before, during, or after treatment.

It is interesting to note that in cases 1 and 2, in which a complete remission was induced by shock treatment, the red blood cell chlorides fell from very high values to normal ones. The number of patients thus observed is too small to justify drawing final conclusions.

The results obtained in the present investigation must be interpreted with care and caution. There is no proof that the high chloride values found in the red blood cells of schizophrenics actually exist in vivo. Peters and Van Slyke²³ state that a chloride shift from red blood cells into plasma may occur if the partial pressure of carbon dioxide is lowered. If the blood is kept for a considerable period at room temperature, acids may be formed and an inverse chloride shift (from plasma to red blood cells) may occur. In the cases here discussed the blood was not taken under oil

cover, and no precaution was taken to maintain it under its normal carbon dioxide pressure. The specimens in both normals and patients, however, were examined immediately after the blood was taken. An increase in red cell chloride occurring in vitro only would mean a reaction similar to the chloride shift of Hamburger. But as an increased red blood cell chloride was here found fairly constant in schizophrenics, it is of great importance, irrespective of its occurrence in vivo or in vitro.

As has been previously stated, the writers do not believe that the increased chloride content of red blood cells is indicative, in itself, of the etiology of schizophrenia. It is more likely a compensatory process in which the chloride ions reestablish an osmotic, electrical or chemical equilibrium. This could happen in a state of disturbed gaseous metabolism or by a decrease in red blood cell bicarbonates. In that case, however, a decrease in chloride ions in the plasma would be expected, but the present determinations showed normal chloride values in the whole blood.

Bicarbonate determinations in plasma and blood cells will be carried out to prove or disprove this conclusion. Acidosis and, eventually, adrenal disturbances may be linked to these chloride changes. 19, 24, 25 It seems probable, therefore, that some other substance or group of substances may be responsible for the increased chloride values in red blood cells of schizophrenics. These changes might be effected by substances which are unable to pass through the cell membrane. Such a concept may be used as a working hypothesis, but nothing definite can be said about it at this stage of investigation. The fact, however, that an abnormal chemistry of the red blood cell is found seems to favor the concept that in schizophrenia we are dealing with a disturbance of the whole organism, not with a localized disease of the brain.

SUMMARY

(1) The chlorides in the red blood cells and plasma were determined separately in 126 subjects, 38 of whom were schizophrenics, 27 nonschizophrenic psychiatric patients, 26 patients with various organic and central nervous system diseases, and 35 normal persons.

- (2) The average plasma chloride values in schizophrenics are 378 mgm. per cent, and the range from 351 to 398. In normal persons the average plasma chloride is 372 mgm. per cent, and the range from 348.5 to 391.
- (3) A marked increase in the chloride content of red blood cells was found in schizophrenics. Whereas the red blood cell chlorides of normal persons averaged 182.8 mgm. per cent, with a range of 163 to 195.5, the red blood cell chlorides of schizophrenics showed an average of 197 mgm. per cent, with a range of 180 to 217. Of the normal persons, 77 per cent had red blood cell chloride values below 190 mgm. per cent, whereas 79 per cent of all the schizophrenics showed values above 190 mgm. per cent. The highest average values were found in schizophrenics of the catatonic type.
- (4) The technique for the determination of chlorides in red blood cells and plasma separately is described. The significance of increased red blood cell chlorides and normal plasma chlorides in schizophrenia is discussed.

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BOOK REVIEWS

The Happy Family. By John Levy, M. D., and Ruth Munroe, M. D. Alfred A. Knopf, New York, 1938. 319 pages. Price \$2.75.

The untimely death of Dr. John Levy lends a peculiar and pathetic interest to this book. Although hardly past his fortieth year, he had already achieved wide recognition as psychiatrist and child guidance clinician. He had served on the staff of the Judge Baker Foundation of Boston, the Child Guidance Clinic in Cleveland and the Institute for Juvenile Research in Chicago, before he became connected with Columbia University, where at the time of his death he was associate professor of clinical psychiatry and attending physician at the Presbyterian Hospital.

Dr. Levy's broad experience has amply qualified him to write on the subject of child guidance and the psychology of family life. Although the book conforms to the latest and most approved teachings in child psychology and parental influences, the author's ideas are so simply expressed that they can be readily understood by any educated person. Each situation discussed is illustrated by a case history; he is careful to say that the material refers to no actual persons. He dwells at considerable length upon the family conflicts, where he not only sees the perennial conflict of the adolescent against the authority of the home, but also considers the subject from the standpoint of the parent, and outlines desirable ways of meeting these conflicts, which resolve themselves after a few years. Patience and forbearance are called for at this critical time in the child's life.

Conflicts between husband and wife naturally occupy a share of the book. The conclusions of the authors—for the book was uncompleted at the time of Dr. Levy's death and was finished by his wife—are based primarily upon the conflicts which came to his notice in the interviews had with parents and young people in his consulting room; it therefore reflects life as it is lived. Anyone—physician, social worker—who is called upon to give advice on family difficulties will be keenly interested in the perusal of this book.

Psychological Studies in Dementia Præcox. By Isabelle Kendig, Ph.D., and Winifred V. Richmond, Ph.D. Edwards Brothers, Inc., Ann Arbor, Mich., 1940. 166 pages, with appendix.

This contribution published under a grant from the Scottish Rite Masons represents another endeavor on the part of those aided by that order's research fund to clarify the present concepts of and knowledge concerning

dementia precox. It contains subject matter obtained in 15 years of work in studies on the intellectual functioning of psychotic patients at the St. Elizabeths Hospital, Washington, with similar studies of nurses and other employees as controls. This volume analyzes in particular the results obtained in cases of dementia precox, comparing them with similar results in other types of the major psychoses and in the control group. The fundamental purpose is to throw some further light on the intellectual functioning in dementia precox, especially in view of the prevailing concept of irreversible deterioration as a constant feature of this condition. True, this concept is being attacked and questioned in recent developments; nevertheless, it is still widely adhered to by practising psychiatrists. The literature indicates various meanings and interpretations of the term "deterioration", thus allowing for differences of opinion. In this connection the authors have wisely assumed the attitude that the official definitions must be taken to represent the general consensus.

After first combing the literature in every connection, the authors present their findings in concise and comparative form. Here one might interpolate that although tables and figures are the bane of many reader's experiences, still it is evident that one of psychiatry's major needs today is accurately gathered and scientifically evaluated statistics. Having presented their findings, the authors proceed to draw conclusions which to this reviewer seem definitely warranted and, what is more, quite in line with advanced thought in psychiatry at present.

Although it is sometimes dangerous to lift short statements from writings to illustrate their content, the following passages seem to sum up the conclusions reached by these authors. "Few of our patients have declined in mental age since admission . . . and among those whose mental age appears to have been consistently low even in childhood, we cannot ipso facto consider them either congenitally 'dull' or deteriorated without much fuller histories of their early development . . . However this may be, with the majority of dementia præcox patients recovering or showing improvement on objective mental tests and with the accumulating evidence that the intellect remains intact even in profound regression, we must abandon or greatly modify our concept of deterioration in the psychosis. We appear to be dealing with functional impairment of intellect, not with permanent defect." (italies are reviewer's)

The volume is attractively lithoprinted. The bibliography is extensive, contains many very recent contributions, and is above all carefully selective of the more sound works on the general subject. The book can be earnestly recommended to those interested in the manifold problems pre-

sented by dementia precox. As indicated by this volume and the earlier "Research in Dementia Præcox" by Lewis, present concepts of this mental state are ill-defined and in some parts nebulous. It is work such as that presented in this volume which will most probably lead to that greater clarification and more complete understanding of dementia precox which we hope is due in the not too distant future.

Shell Shock in France, 1914-1918. By CHARLES S. MYERS, C. B. E., F. R. S. Cambridge University Press (or The Macmillan Company, New York), 1940. 146 pages. Price \$1.25.

With Great Britain at war, it is not surprising that much of the scientific literature published in England should have a military cast. Dr. Myers' monograph is an outright military document and deals with a particularly important phase of military medicine. The scientific material has appeared in British journals prior to 1920, but for that very reason its republication was indicated. The remainder of the book (which appears in print for the first time) deals with administrative psychiatry. It is a record of the author's personal experiences as a psychiatrist with the Royal Army Medical Corps both in France and in England, and is based upon a war diary. This portion reeks with recriminations, but Myers seems justified in "raking over old coals" for he is doing it (as he says) solely to prevent a repetition of previous mistakes. Parenthetically, it is to be hoped that the World War abuses of psychiatric treatment and administration have already been corrected.

Myers was among the first to use the term "shell shock", and was also among the first to realize the disadvantages of the term. He considers two groups of cases: one group suffers from "shell concussion", where organic damage is present as a direct result of a bursting shell; the second group is that of the so-called "shell shock", where a "mental shock" or traumatic neurosis has occurred with or without actual physical injury. Myers suggests as a therapeutic measure that the term "shell shock" of which some ex-soldiers still boast (!) be changed to "nervous shock", which bears a definite taint of opprobrium.

The psychopathology of "nervous shock" is outlined as follows:

- "(a) emotional trauma
 - conscious, due to extreme fright, horror or other intolerable distress.
 - II. unconscious, after physical violence, producing
- (b) mental 'shock', varying from slight dizziness or 'cloudiness' to profound stupor, leading to

(c) disordered personality, characterized by amnesia, fission of personality, suggestibility, etc. accompanied perhaps by

(d) hysteric (functional) symptoms and/or by neurasthenic ('exhaustion') symptoms, in the emotional, cognitive, volitional and autonomic systems."

The author's viewpoint on treatment is an eclectic one. He suggests that treatment be carried out in a "suitable" environment, at the front if at all possible. Psychotherapy in the form of suggestion, persuasion and reeducation is stressed. Analytical therapy should be employed where indicated and feasible. Occupational therapy and physical therapy are important adjuncts. The ultimate goal of all therapy is to return the patient to some form of active duty, either at the front or behind the front lines.

The book is well written and succinct, as well as obviously timely. Although one need not necessarily agree with the author's psychological viewpoint, this reviewer would not hesitate to recommend the book to all physicians in war service, not alone to psychiatrists. And in these troubled times perhaps all physicians should read it.

Regional Diagnosis in Lesions of the Brain and Spinal Cord.

A concise introduction to the principles of localization of diseases and injuries of the nervous system. Eleventh edition. By ROBERT BING. Translated and edited by Webb Haymaker. The C. V. Mosby Company, St. Louis, 1940. 275 pages and index with 125 illustrations (27 in color) and seven plates. Price \$5.00.

The field covered by this book is adequately described in the title and subtitle, and its quality is attested by the reputations of its author and its translator. In neither respect does it fall short. Its 15 chapters are divided into two parts. One entitled "The Localization of Spinal Cord Lesions" is concerned in detail with anatomical, pathological and clinical manifestations of lesions located anywhere in the cord. The second part, entitled "The Localization of Cerebral Lesions", is divided into three sections dealing with lesions of the brain stem, the cerebellum and the cerebrum, the basal ganglia and the hypophysis respectively. Each section is an exhaustive study of the known principles concerning manifestations of lesions in these areas. But throughout the book Bing adheres strictly to a principle stated in his preface, "I have included only the data which could withstand the most critical scrutiny as to soundness and practical value." It is this feature which leads to the volume becoming a tightly packed exposition of the factual knowledge in its field. Theories are properly left for discussion in the textbooks on the general subject of neurology.

It would be difficult to enumerate all the attractive features of the book. Outstanding are its exact descriptions supplemented by clear and expressive diagrams and illustrations, the clarity and ease of the translator's language, and the inclusion of 11 carefully prepared tables at timely points. These and many others make the book take a place on the "must" list of any student or practitioner of neurology and on the preferred list in the reference library of any physician who meets neurological cases in his practice. As a means of reviewing neuroanatomy in relation to its clinical applications, this reviewer knows of no better guide. After a perusal of Bing's work, one understands why it has lived through 30 years and 11 editions. It richly deserves an even longer life as well as the wider use which Dr. Haymaker's translation makes available to it.

Changes in the Lipide Contents of Serum in Patients with Manicdepressive Psychosis. By Gudrun Brun. Translated from the Danish by Hans Andersen, M. D. Einar Munksgaard, Copenhagen, 1940. Paperbound, 267 pages. Price Dan. Kr. 6.

The purpose of this investigation was to determine whether the serum lipide curves after fat ingestion in manic-depressive patients varied from those of normal persons and of patients suffering from other psychoses, also to compare the results obtained with those published by Georgi in 1934.

The various methods of cholesterol determinations, as well as explanations for the discrepancies in the normal limits obtained by such methods, are discussed in the first part of the book. Attention is called to the variations occurring from day to day and throughout the day, as well as to conditions influencing the concentration in normal persons. Values found in various pathological conditions are next discussed.

The author presents a series of cholesterol, lipide and phosphatide determinations on normal persons, patients suffering from manie-depressive psychosis, and another group with other mental states including schizophrenia. Analyses were made first on fasting blood, then on specimens obtained two, four, eight and 24 hours after the ingestion of olive oil or cholesterol with olive oil. Total cholesterol and free cholesterol determinations were carried out on such specimens after the method of Georg C. Brun, a method which the author considers precise although time-consuming. Summaries of the case records are presented, as well as curves and tabulations of the cholesterol determinations. The free cholesterol-total cholesterol quotients in the non-manic-depressive psychotic and normal subjects show similar variations and average values, while in manic-depressives the proportion between free cholesterol and total cholesterol is subject to

greater variations. The frequent occurrence of increased quotients in manic-depressives makes it justifiable to consider this phenomenon as something associated with manic-depressive psychosis; in the opinion of the author, its presence confirms the diagnosis.

Total nitrogen determinations simultaneous with cholesterol determinations showed no evidence of systematic connection between the course of serum cholesterol concentration and the total nitrogen content of the serum after fat ingestion.

Determinations of neutral fat and phosphatide showed fundamentally the same form of curves in all the ingestion experiments with the average increase in manic-depressives larger than in normal individuals.

The final chapter is a review of the prevailing theories concerning fat absorption from the intestinal canal and the hypotheses advanced relative to a phosphorylation taking place in the intestinal epithelium. The writer presents some of her theories to explain the lipide changes demonstrated in this work, among which she states her belief as to a failure in the regulatory mechanism in manic-depressive psychoses.

This volume is the result of much technical work and careful thought, not only in the recording of results but also in the theories advanced to explain them. It should prove an acceptable reference book to those interested in biochemical investigations of the psychoses.

Sexual Pathology. By Magnus Hirschfeld, M. D. Emerson Books, New York, 1940. Revised edition (translated by Jerome Gibbs).

It is probable that, at the time this book was originally written, it performed a valuable service in cataloguing the various sexual aberrations and in emphasizing the importance of the internal secretions while abandoning the old idea that "degeneracy" is responsible for sexual abnormalities. But the reason for issuing a "revised edition" is not clear, particularly when the scientific conceptions are not brought up to date and when the only knowledge of the internal secretions is that there is a gynase and an andrase. No clear concept of the rôle of psychic factors in these aberrations is offered, although it is mentioned that there are psychic factors. The name of Freud is mentioned once, but his contributions are nowhere offered or commented upon. Other members of the dynamic school are not even mentioned by name.

The collection of ease studies is good, and well illustrates the various types of abnormalities discussed. But the book is so full of errors in translation, as well as typographical errors, as to make it nearly valueless as a scientific text. For example, "oliospermy" is used for "oligospermy" and

"train" for "tract". Other mistakes of this sort are apparent on superficial scrutiny. Added to this is the use of Latin phrases for various sexual activities and inconsistency in the use of terms such as using both English and Latin pharmacologic names in the same sentence. In this translation, the book seems aimed at sensation-seekers, a poor way to prostitute what apparently was once a milestone in its special field.

Juvenile Delinquents Grown Up. By Sheldon and Eleanor Glueck.
The Commonwealth Fund, New York, 1940. 330 pages. Price \$2.50.

To all who are familiar with the authors' book "One Thousand Juvenile Delinquents" (1934), this followup over two additional five-year periods of those same delinquents will be highly instructive and most valuable. But this volume in itself is a comprehensive study of the results of pencorrectional treatment and the careers of the 1,000 boys growing into adulthood.

The cultural and socioeconomic background, the family milieu, mental health, early conditioning, etc., are reviewed. Juvenile delinquents seem to be handicapped both by nature and by nurture, according to these investigations.

The major results of the study and observation indicate that the general trend points toward reform. At the average age of 29, 40 per cent have ceased to be lawbreakers, many others have improved. There seems to be a tendency toward the relinquishing of delinquent careers with biological maturity and the integration of physical, mental and socioeconomic factors. Conduct seems to run a predictable course.

Research showed that those young men who reformed had a better family history, a sounder milieu and more favorable personal assets. Those who were retarded in their process of maturation had a less adequate family background and were less favored by innate qualities. They had a tendency to become petty offenders, reformed later, or not at all.

The authors established prediction tables of probable behavior for the different types of offenders and the approximate age at which changes of conduct are likely to occur. They distinguish four conduct types and predict probable behavior during extramural, intramural and specific forms of penocorrectional treatment.

The authors look upon maturity as adult integration in accordance with psychosomatic and psychoanalytic concepts. Some of the 1,000 delinquents never achieve maturity. What seemed to be only an "unintegration" at first becomes a "disintegration" in the end. Some reforms seem to spring

from the maturing process, while some delinquents relinquish their criminal careers through a process of drifting, the slowing-down process of later years.

The important practical implication of this book is the necessity of a reorientation for courts, parole boards and other agencies guiding and judging delinquents and criminals. If we are enabled to predict conduct at the various age levels and more particularly to prognosticate behavior in penocorrectional situations, we find in the hands of judges an instrument for the "individualization of justice".

A science of criminology is in the making. The trial-and-error method with its failures, its waste of time, energy and money, is replaced by a scientific, individualized, rational administration of criminal justice. A specialized training of those administering this new justice is of course paramount. With those better methods of diagnosis, prognosis and treatment, the process of maturity and reform may be hastened and those who are likely to be unable to adjust can be segregated and adequately supervised.

The book represents an enormous amount of study and work. The authors' previous volumes, "Five Hundred Criminal Careers", "Later Criminal Careers", and "Five Hundred Delinquent Women", may supplement the present study.

It would seem that legal and allied professions may well read this book with advantage, especially because of its challenge for serious consideration of the psychobiological implications of delinquency, while the medical and allied professions may find useful suggestions for needed measures in practical therapeutics.

Doctors in Shirt Sleeves. Edited by Sir Henry Bashford. Veritas Press, New York, 1940. 294 pages. Price \$2.50.

For several years a pleasant feature of the Lancet has been a department captioned "Grains and Scruples". Under this heading appeared articles by physicians which reflected their collateral interests. Perhaps one may define it as their hobbies. Usually the contributions had a medical tinge or at least could be recognized as written from the standpoint of the physician. Nearly all of them were remarkably good, some indeed elever and witty. The articles demonstrated that there is in the medical profession much talent which does not disclose itself until an opportunity presents itself, as in "Grains and Scruples". This book, fresh from the press, is a collection of 20 selected articles. They have a wide range and

include reflections on life and morals, medical students, amusing stories of life in city and country, toys, gardening and fishing. The editor has used excellent taste in the selection and arrangement of the articles, and the book will be found equally pleasing to the medical man and to the layman. A copy of the book would make an admirable gift for a physician friend.

Psychiatric Clinics for Children. By Helen Leland Witmer, Ph.D. The Commonwealth Fund, New York, 1940. 437 pages. Price \$2.50.

In this volume, Dr. Witmer has given a thorough, understanding study to every phase of child guidance clinics. It is timely, for it presents information which is vital for the furtherance of such agencies. The author evaluates the work done, analyzes the various theories pertaining to this field of endeavor, and furnishes practical knowledge for the administration of clinics. Her scope is broad, since both philosophical and technical approaches are used.

Part I portrays the background of child psychiatry in the United States. Dr. Witmer here pays particular tribute to Adolf Meyer, who in her opinion was largely responsible for the early beginnings of child guidance work under state auspices. The Freudian theory likewise is evaluated with respect to its contributions to child psychiatry.

The author next surveys the ideas and institutions connected with the progress of the mental hygiene movement, pointing out those factors which gave it momentum as well as those which deterred it. This section should be of great service in the planning of new clinics and the adjustment of the old.

Especially interesting is Dr. Witmer's discussion of the state-supported clinics serving the extraurban population. By describing the functions of these clinics rather than merely giving statistics, the author is able to present a more lasting and significant evaluation. Particular emphasis is placed upon the clinics and mental hygiene work conducted through state hospital staffs, for it was from this source that the movement sprung. The question of education is most important, since without community enlightenment in this field there could be little hope of success.

Dr. Witmer feels that state hospitals as a whole have not developed mental hygiene in the community to its fullest possibilities. That the mental hospital has lagged in this respect is shown by the fact that only 19 states offered clinic service to children through their state hospitals. In partial defense of the hospitals, she states: "it appears that a program of child psychiatry under the auspices of a mental hospital meets with many difficulties some of which are due to the psychiatric point of view of the hospital and to staff equipment, some to the limitations inherent in semi-rural

work, and some to the feelings of the public about mental hospitals and mental disorders." However, the author feels that fundamentally the state hospitals have not the ability to give what is needed in child guidance work because their viewpoint is typically diagnostic; a more social and human viewpoint is required to deal adequately with this type of problem. The chapters following deal with the various state hospitals, giving a picture of their setups for clinical work and the success they have met with in this field.

Part III deals theoretically with the various problems arising through the survey discussed in Part II. The chief argument here is that a clearly conceived function of a clinic will result in less confusion and more comprehensive cooperation. The three objectives concurrently held by most clinics are: "to reduce the number of admissions to state institutions, to prevent psychoses and crime, to promote the mental health of children irrespective of future contingencies." Before discussing these objectives, the author deals first with the problems of administration and policy. Here the distinction made between the types of patients served and the service offered is clarifying as well as helpful. In the author's opinion, the first step toward an efficient clinic is defining its main objective.

Discussing the theory that clinics are a means of preventing psychoses as well as crime, Dr. Witmer approaches the problem first by statistical data indicating the ratio of the population committed to mental hospitals. No estimate can be made concerning probable crime commitments. The actual problem of preventing psychoses through treatment of children falls down, in the author's opinion, for various reasons. Among these is the disagreement among psychiatrists with respect to functional psychoses. There is too much divergence in both theory and practice at the present time to warrant a satisfactory method of preventing psychoses; hence Dr. Witmer rejects this as an ultimate objective of child guidance work.

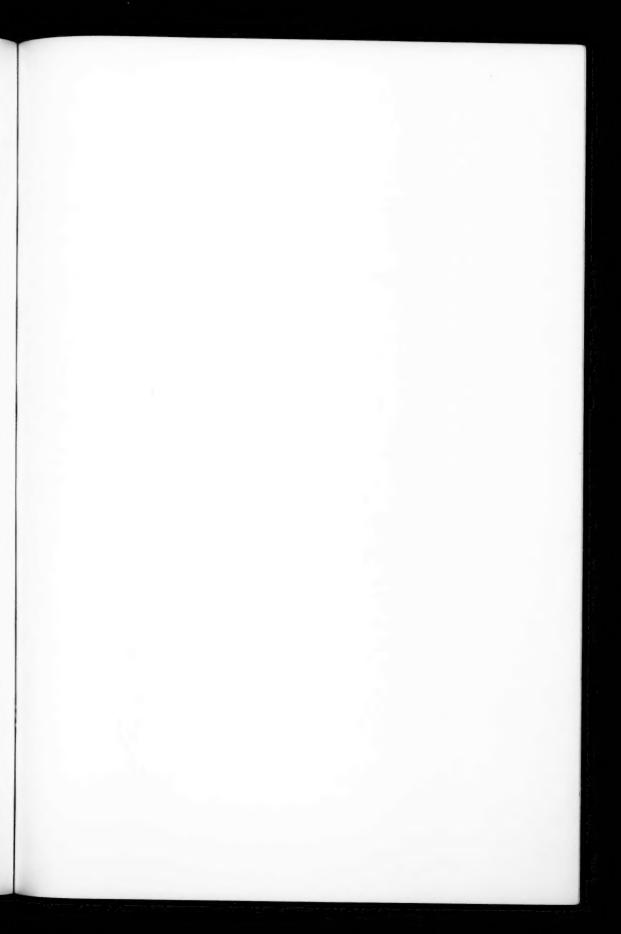
Likewise, the prevention of delinquency cannot find a stable foothold as an objective. Although clinic guidance often assists in the actual solving of specific delinquent problems, it cannot be considered as a means of thwarting future delinquencies since the factors involved are too complex to be met by clinic work. In both cases, then, a psychiatric program can only hope to treat an existing misfortune rather than avert future catastrophes.

But there are definite objectives which must be met by the present child guidance program. One of these is serving those children handicapped by mental or neurological defects. Here a definite need must receive the professional aid of trained workers. The probability of helping this type of patient and the best methods of approach are here discussed.

Next Dr. Witmer evaluates the clinic's usefulness in helping children suffering from emotional problems. Clearly defining the theories developed in child guidance work, she emphasizes the conflict between social and individual strivings. Although the fundamental psychiatric principles are not too divergent, child guidance theory has a set of distinctive characteristics. These theories owe much to Rank, Meyer, and Freud, whom the author feels have had the greatest influence.

Throughout the book Dr. Witmer strives to demonstrate the necessity of community interaction. In rural areas, small towns and metropolitan districts, all must realize that much is to be gained from cooperation between social agencies and psychiatrists. "If however a way can be found by which the various agencies of the community can take from psychiatry its knowledge of human emotions and utilize it for the work they are set up to do, some of the puzzling problems that now handicap psychiatric work with children will be lessened and the possibility of doing effective work on a state-wide basis increased." Unless the community as a whole accepts mental hygiene as its way of life, there is little hope for its effectiveness.

From the standpoint of the psychiatrist, the psychologist, the social worker and the layman alike, this book will be far-reaching in its influence, for it presents in clear, bold terms the child guidance problem. It has so well defined the function of each member of a child guidance program, so vividly pointed out the weaknesses of existing systems, and so aptly pleaded the cause of community cooperation, that it should act as a cornerstone for the evolvement of a finer system of child guidance clinics.





AUGUST E. WITZEL, M. D.

AUGUST E. WITZEL

Dr. August E. Witzel, first assistant physician of the Brooklyn State Hospital and acting medical inspector for the Department of Mental Hygiene, has been appointed superintendent of the Newark State School by Commissioner William J. Tiffany, the appointment to become effective October 1, 1940.

Dr. Witzel's scholastic training and his long experience in institution work, together with his personal qualifications, eminently fit him for his new position. He was born June 13, 1890, in Rochester, New York. He attended the Oswego High School from 1904 to 1908, and Syracuse University and Medical College from 1909 to 1916. From the university he received the degree of Bachelor of Science, from the medical college the degree of Doctor of Medicine. While in college he took a keen interest in student activities, was president of the junior class in the university and of the freshman class in the medical college. He was coxswain of the freshman and varsity erews of the university and also played baseball and football on class teams. To supplement his medical training, Dr. Witzel pursued a course in neuropathology in 1924, and a course in child guidance at the New York State Psychiatric Institute in 1928.

Dr. Witzel entered the State hospital service in June, 1916, as medical interne at the Utica State Hospital. He was promoted to the post of assistant physician, September, 1917, and to that of senior assistant physician in April, 1920. He was appointed director of clinical psychiatry at the Brooklyn State Hospital in 1925, and was transferred to the position of first assistant physician in May, 1940. He was detailed as acting medical inspector for the Department of Mental Hygiene on July 1 of this year. In connection with his State hospital work, Dr. Witzel has conducted mental hygiene and child guidance clinics and has given courses at the Cornell Medical College and the Long Island Medical College. He has written papers and given addresses on administrative and psychiatric topics at various medical meetings.

Dr. Witzel is a member of the New York State Medical Society, the New York Society of Clinical Psychiatry, and the Brooklyn Neurological Society. He is also a Fellow of the American Psychiatric Association.

On August 24, 1917, Dr. Witzel married Helen M. Van Alstyne of Ilion, New York. They have a daughter, Patricia Ann, who is now 17 years of age.

FREUD MEMORIAL ROOM

Through the generosity of Dr. A. A. Brill, special equipment has been obtained for the Freud Memorial Room, which forms part of the library of the New York State Psychiatric Institute and Hospital. The Memorial Room has been established for the filing of psychoanalytic works, the nucleus of which is a portion of Sigmund Freud's personal library, consisting of 814 items: books, monographs, pamphlets, etc. Dr. Brill's liberal offer assures permanency for the collection of Freudiana, access to which is available for reference to historians, research workers and students of psychiatry.

It is the aim of the New York State Psychiatric Institute and Hospital to acquire ultimately a complete library on psychoanalysis. Individuals wishing to place their psychoanalytic books and other pertinent data for permanent security should communicate with Dr. Nolan D. C. Lewis, Director, New York State Psychiatric Institute and Hospital.

SIGMUND FREUD MEMORIAL FELLOWSHIPS

The Boston Psychoanalytic Institute announces three additional Sigmund Freud Memorial Fellowships for Psychoanalytic Training, to begin September, 1941. These fellowships cover tuition only, and are open to graduates of recognized medical schools who have had at least one year of general hospital training and two years work in psychiatry.

One additional fellowship for training in applied nontherapeutic psychoanalysis will be open to those who have a Ph.D. or equivalent degree in the field of anthropology, sociology, pedagogy, etc.

For further information, those interested are urged to communicate immediately with Dr. M. Ralph Kaufman, Chairman of the Educational Committee, Boston Psychoanalytic Institute, 82 Marlborough Street, Boston, Massachusetts. Applications will close on February 1, 1941.

NATIONAL CENTRAL UNIVERSITY OF CHINA

A communication from the National Central University of China indicates that the courses of instruction in psychology and mental hygiene are being carried on, although under difficulties. The head of the department of psychology writes that they have been out of touch with new literature and that there is an increased need for up-to-date information in their research work there. He would appreciate receiving reprints, periodicals or test forms pertaining to the field of mental hygiene. The address: National Central University, Chungking, China.

AID FOR TAVISTOCK CLINIC SOLICITED BY THE MENNINGER CLINIC

A letter from Colonel J. R. Rees of London states that the Tavistock (Psychiatric) Clinic recently moved from London to Hampstead on account of the war threat, and is now functioning very actively at the latter place, in spite of the fact that 40 of the 90 staff physicians have been called up for duty. Post-graduate courses are being continued with special lectures on the war neuroses. The University of London has recognized the clinic, and work on research problems is being continued. Fifty of the younger psychiatrists have arranged a scheme for pooling all of their private earnings, a plan which appears to be working out successfully and preventing the bankruptcy of various individuals.

The Tavistock Clinic suffered the great misfortune of losing most of its books in the move from Malet Place to the new location, and a shortage of funds prevents its replacement. Colonel Rees wonders whether any American psychiatrists would care to assist in the replacement of this library. The Menninger Clinic will assume the cost and the responsibility of accumulating any books for the Tavistock Clinic which those interested wish to donate, and of shipping them as soon as war conditions permit. A nucleus has already been contributed. Additional contributions may be mailed to the librarian of the Menninger Clinic, Topeka, Kansas, or to the clinic's New York office, 30 Rockefeller Plaza, New York City.

-From the Bulletin of the Menninger Clinic.

SALMON MEMORIAL LECTURES

The Salmon Memorial Lectures will be delivered at the New York Academy of Medicine on November 8, 15 and 22 of this year by Dr. Nolan D. C. Lewis, director of the New York State Psychiatric Institute and Hospital.

DR. CHENEY HONORED BY APPOINTMENT TO MEDICAL BOARD

The editorial board of this journal is pleased to note the appointment of Dr. Clarence O. Cheney to the medical board of the New York Hospital, which became effective in July, 1940.

Following his career in State hospital service as assistant superintendent of the Utica State Hospital, superintendent of the Hudson River State Hospital and director of the New York State Psychiatric Institute, Dr. Cheney accepted in 1936 the position of medical director at the Blooming-dale Hospital, renamed New York Hospital—Westchester Division, White Plains, New York. He has for some years ably served as associate editor of the Psychiatric Quarterly, and is professor of clinical psychiatry at the Cornell University Medical College, New York. Dr. Cheney has been a member of numerous prominent psychiatric organizations, including the American Psychiatric Association, of which he has held the post of president.

RETIREMENT

Dr. Robert Woodman, superintendent of the Middletown State Homeopathic Hospital, has signified his intention to retire after a long and meritorious service in the Department of Mental Hygiene.

PSYCHIATRY AND GENERAL MEDICINE

The subcommittee on mental hygiene in general medicine of the National Committee for Mental Hygiene is attempting to help remedy the ignorance and negligence of psychiatric principles by general practitioners. It aims to encourage the doctors in mental hospitals to take more interest in the community, also to establish clinics to help physicians see the application of psychiatry in general medical problems. The committee has undertaken a study to ascertain what contacts mental patients have had with general practitioners prior to admission to a state hospital. Among 500 patients for whom questionnaire replies were received, it was found that in 66 per cent of cases the physician had mentioned to the patient or relatives signs of mental disorder or "nervousness"; in 34 per cent, the physician failed to mention such signs. In little more than half the cases did the physician refer the patient to a psychiatrist or to a mental clinic. Only 5 per cent of the patients had ever consulted a psychiatrist previous to the "breakdown" leading to admission.

DEATH OF SECRETARY FARRINGTON

Lewis M. Farrington, who had been secretary of the New York State Department of Mental Hygiene since its establishment in 1927, died suddenly from a heart attack at his home in North Chatham, New York, on Friday, August 30, 1940. He was 62 years of age.

Mr. Farrington was born in Wales, Erie County, New York. He was graduated from the East Aurora High School in 1897 and from Keuka College, with the degree of Bachelor of Science, in 1904.

Following graduation, Mr. Farrington entered the service of the Temple Pump Company of Chicago and continued in this employment until January, 1905. He entered the New York State hospital service as stenographer at the Manhattan State Hospital in February, 1905. He was made secretary to the superintendent of that hospital in March, 1908, and was transferred to the office of the State Commission in Lunacy on February 1, 1911. He was promoted in August, 1911 to the post of assistant secretary and assumed the added duties of treasurer in September, 1915. He became secretary of the State Hospital Commission in August, 1921 and continued in the same position with the Department of Mental Hygiene.

Mr. Farrington served under several different commissioners and won special recognition for his comprehensive knowledge of office management as well as his skill in conducting the affairs of the Department of Mental Hygiene. He was in frequent demand as a speaker on mental hygiene topics and on the work of the department and its institutions.

At North Chatham, where he established his home about 25 years ago, Mr. Farrington was a trustee of the Methodist church and of the public library of the village. He also served as a member of the school board. In Albany, he was a member of the University Club and of the Torch Club.

Mr. Farrington is survived by his wife, Mrs. Myrtle Briggs Farrington, his daughter, Martha S. Farrington, assistant social worker at the Wassaic State School, and a son, George B. Farrington, a student at Hobart College.



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